

IN THE UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF MINNESOTA

GRAPHIC PACKAGING  
INTERNATIONAL, LLC,

Plaintiff,

V.

INLINE PACKAGING, LLC,

Defendant.

C.A. No. 0:15-03476-ECT-LIB

**EXPERT DECLARATION OF JOHN FLOROS, Ph. D., IN SUPPORT OF PLAINTIFF  
GRAPHIC PACKAGING INTERNATIONAL, LLC'S PROPOSED CLAIM CONSTRUCTIONS**

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## **I. INTRODUCTION**

1. My name is John Floros. I have been asked by counsel for Graphic to provide my independent technical analysis and opinions as an expert in the field of food science, packaging, and technology. In particular, I have been asked by Graphic's counsel to review and analyze the scope of the designs claimed in U.S. Patent Nos. D694,106 (the "106 Patent"), D694,124 (the "124 Patent"), and D727,145 (the "145 Patent") (collectively the "Graphic Patents").

## **II. QUALIFICATIONS**

2. I earned a combined Bachelor of Science / Master of Science Degree (1983) in Food Science & Technology from the Agricultural University of Athens in Greece. I also earned a Ph.D. (1988) in Food Science & Technology from the University of Georgia at Athens. My Ph.D. research was in the field of food process optimization.

3. I am currently the President of New Mexico State University. Prior to this role, I was a Professor of Food Science, Packaging and Engineering, the Dean of the College of Agriculture, and Director of K-State Research and Extension at Kansas State University, a position I began in July of 2012 and held until June 2018. From 2000 to 2012, I served as Professor of Food Science, Packaging and Engineering, and Head of the Department of Food Science at Pennsylvania State University. From 1988 to 2000, I was on the faculty of the Department of Food Science at Purdue University, first as Assistant Professor (1988 to 1993), then as tenured Associate Professor (1993 to 1998), and finally, as Professor of Food Science, Packaging and Engineering (1998 to 2000).

4. Prior to my academic career, I held positions as technical supervisor and plant manager for food processing plants with a focus on processing and packaging of foods, particularly fruits and vegetables. My experience and knowledge about food packaging is

significant as I have worked in relevant positions in the food industry, in academic research, as a university professor, and as an industrial consultant.

5. More recently, I have worked with numerous companies, not-for-profit organizations, and government entities, either as a member of their scientific/technical board, as a consultant, or on research projects that they have funded. Some of the companies/entities that I can mention include: Cargill, Tropicana, Tate and Lyle, MGP Ingredients, NASA, USAID, USDA, FDA, and the Institute of Food Technologists (IFT). In these roles, I have worked on food quality, food safety, food processing, equipment design and development, food packaging, packaging materials, and package design.

6. In the mid-1990's, I worked for approximately a year in the research and development department of Nestlé as a food engineer. In that role, I worked on over fifty different projects related to new and improved methods and equipment for food processing, and new and improved food packages and packaging systems.

7. In the course of over thirty-five years in the food science and technology field, I have been involved in numerous projects to develop new or improved methods, packages and equipment to process and package food. For example, I have been involved in the following projects directed to:

- a. finding optimum gas permeability values for “breathable” plastic films that maximize the shelf life of minimally processed produce packaged under modified atmospheres;
- b. designing “active” packaging films that: (a) have antimicrobial properties and improve the safety of some packaged foods, and (b) absorb oxygen and extend the shelf life of oxygen sensitive foods;

- c. modelling the migration of health-hazardous substances and the sorption of flavor components in packaged foods;
- d. improving methods and equipment that detect package integrity defects and assure food safety and quality;
- e. applying nanotechnology based approaches to build new bio-based polymers for improved controlled release of active compounds and better packaging applications; and
- f. developing edible films and coatings with antimicrobial and other active properties to improve the safety and quality of food products.

8. Throughout my career as a university faculty and administrator, I have been involved in numerous cases where individual researchers or teams of researchers filed for patents and/or obtained patents on behalf of the university. In particular, as a university administrator I have reviewed and signed invention declarations, and have approved and supported individual and/or group inventors' patent filings. In some cases this involved helping determine who legitimately was an inventor based on their individual contributions.

9. My industrial experience, while working or consulting for private companies includes involvement with paperboard, plastic, metal and glass packaging, microwaveable packaging, and microwave susceptors as applied to food products. Much of this experience pertains to multilayered composite packaging materials that include paper, plastic and metal layers, as well as other elements including susceptors, antimicrobials, absorbers, nanomaterials, etc. Often my work is aimed at assisting companies to design better food packages for improved product quality, safety, convenience, functionality, usability and overall consumer appeal.

10. Attached as Schedule A is a copy of my current *curriculum vitae* further elaborating on my professional background and qualifications.

### III. COMPENSATION

11. I am being compensated at my customary rate of \$400 per hour for my work on this case including the preparation of this Expert Declaration and any related testimony. I receive an additional \$100 per hour for any work on this case that requires travel. In addition, I am being reimbursed for my reasonable expenses incurred in connection with my work on this case. No part of my compensation is dependent on the outcome of this case.

### IV. PRIOR TESTIMONY AND PUBLICATIONS

12. In the last four years, I have testified as an expert at trial or by deposition in the following cases:

- *Inline Packaging, LLC v. Graphic Packaging International, Inc.*, Patent Trial and Appeal Board, IPR2015-01609; *Patent Owner's Expert, 2015-2017* [Sworn Declaration];
- *Inline Packaging, LLC v. Graphic Packaging International, LLC*; United States District Court for the District of Minnesota, Case No. 15-cv-3183; *Defendant's Expert, 2015-2018* [Sworn Declaration/Deposed];
- *J.R. Simplot Company v. McCain Foods USA, Inc.; McCain Foods Limited v. J.R. Simplot Company*; United States District Court for the District of Idaho, Case Nos. 1:16-cv-00449 and 1:17-cv-350; *Expert for McCain Foods, 2017-present* [Sworn Declaration/Deposed]; and
- *Free-Flow Packaging International, Inc. v. Automated Packaging Systems Inc.*, United States District Court for the Northern District of Ohio, Case No. 5:17-cv-02318; *Plaintiff's Expert, 2018-present* [Sworn Declaration].

13. Schedule A includes a list of all publications I have authored in the last ten years.

### V. DATA AND OTHER INFORMATION CONSIDERED

14. The data and other information that I have considered in forming my opinions are identified in this Expert Declaration and/or in the attached Schedule B. I reserve the right to

supplement, expand, update, and/or refine my opinions and conclusions in light of any additional information or material that is brought to my attention during the course of this case, including, but not limited to, any additional declarations or expert reports that the parties might offer, testimony, or other evidence introduced at a hearing or trial. I reserve the right to supplement this Expert Declaration to consider any such additional information. (*See* additional reservation of rights to supplement in paragraph 17 below).

15. The exhibits I intend to use in any testimony I may provide include the exhibits referenced in this expert report. I may also rely on and use demonstrative exhibits and summaries that have yet to be prepared. I may also use a variety of other materials to summarize and support my opinions and testimony. These may include such things as models, studies, photographs, animations, charts, drawings, or other demonstrative materials.

#### **VI. BASIS FOR TESTIMONY**

16. The basis for my testimony and opinions in this matter include: the documents, data, and other information that I have considered, as set forth in this report; and my background education, training, and years of experience. My testimony also may be based in part on other sources of information identified in this report and the testimony of witnesses (both fact and expert) and associated documentation in this case.

17. I reserve the right to give opinions on facts and other matters arising subsequent to this report, either prior to or during any hearing or trial in this action.

#### **VII. LEGAL PRINCIPLES**

18. The following understanding of the various relevant legal principles is based on discussions with counsel for Graphic.

**A. Claim Scope and Construction**

19. I understand that a design patent claims and protects the ornamental design for an article of manufacture, and that an article of manufacture presumably has a function or functional features.

20. I understand that the claims of a patent define the scope of the invention, and that for a design patent, the claims protect the novel, ornamental aspects of the claimed design in its entirety. I also understand that determining whether a patent claim has been infringed requires that a court first properly construe the meaning and scope of the patent claims. To construe design patents, I understand that a court examines the ornamental features of the design shown in the patent drawings from a visual perspective and typically does not attempt to construe the claims with a detailed verbal description of the design elements.

21. I understand that in addition to the drawings of the claimed design, the Court may look at what is known as intrinsic evidence to construe the claims, which constitutes the patent's specification and prosecution history.

22. I understand that a court may examine evidence other than intrinsic evidence when construing a claim, but only if the claim remains ambiguous after considering the intrinsic evidence. I understand that this type of evidence is called extrinsic evidence.

23. I understand that in construing a design patent claim, a court will limit the scope to the overall ornamental visual impression of the article shown in the drawings, rather than the functional features of the article. I understand that any wholly functional concepts may be factored out of a design patent claim during claim construction.

24. Finally, I understand that while a design patent does not protect the functional concepts underlying any utility-related features shown in the drawings, the scope of the claim



includes the overall appearance of all claimed elements in the design, whether they have a functional purpose or not. I understand that as a result, the appearance of any utilitarian or functional features of a claimed design contributes to the overall ornamentation and thus the claim's scope, just as any features that may not have an underlying function.

**B. Functionality and Design Patents**

25. I understand that in order for a design to be patentable, it must be a new, original, and ornamental design for an article of manufacture.

26. I understand that these requirements mean that if the appearance of a claimed design is essential to the use of the article, it cannot be covered by a design patent. I further understand that a design is essential to the use of an article and primarily functional when the appearance of the claimed design is dictated by the use or purpose of the article. I understand that a design patent can be held invalid if the claimed design is primarily functional rather than ornamental.

27. I understand that the principal test for determining whether a claimed design is primarily functional is to determine whether there are alternative designs available. I also understand that there are secondary considerations for determining whether something is primarily functional, including whether the protected design represents the best design; whether alternative designs would adversely affect the utility of the specified article; whether there are any accompanying utility patents; whether the advertising touts particular features as having specific utility; and whether there are any elements in the design or an overall appearance not clearly dictated by function.

28. I understand that the fact that some of the features of the claimed design are functional does not invalidate the design patent, so long as the overall design has some ornamentation.

#### **VIII. SUMMARY OF EXPECTED TESTIMONY AND OPINIONS**

29. As part of my analysis, I have been asked to: (1) determine how the Graphic Patents would be viewed by a designer of ordinary skill in the art (“DOSA”); and (2) consider whether the appearance of any of the features claimed in the Graphic Patents are solely dictated by function such that they should be factored out of the claimed designs.

30. In my opinion, a designer of ordinary skill in the art when the Graphic Patents were filed would be a person having at least three years of experience designing paperboard constructs for consumer products.

31. After reviewing the intrinsic evidence, in my opinion a DOSA would consider all of the drawings for each of the Graphic Patents in context with one another and determine that the claims are limited to the overall visual impression of the drawings. By viewing the claims in light of the ornamentation of the drawings in their entirety, a DOSA would not view the Graphic Patents as claiming the underlying functionality of any of the features. In my opinion, a DOSA would not find any ambiguities because the drawings are clear, and the intrinsic evidence supports this construction.

32. Based on my understanding that Inline intends to assert that the Graphic Patents have no scope because they have no non-functional features, I reserve the right to review Inline’s evidence offered in support and respond.

**IX. PERSON OF ORDINARY SKILL IN THE ART**

33. I understand that with respect to design patents, a DOSA is a hypothetical person who is presumed to be familiar with all of the prior art designs that have been determined to be reasonably relevant.

34. Here, it is my opinion that a designer of ordinary skill in the art at the time of the claimed invention in the Graphic Patents would be a person having at least three years of experience designing paperboard constructs for consumer products. He/she could be a scientist/engineer with a BS degree in a related field (i.e., packaging science, food science, chemistry, biochemistry, chemical engineering, food engineering) but a technical degree may not be required if he/she obtains comparable experience working as a packaging professional for 3-5 years in designing paperboard constructs for consumer products.

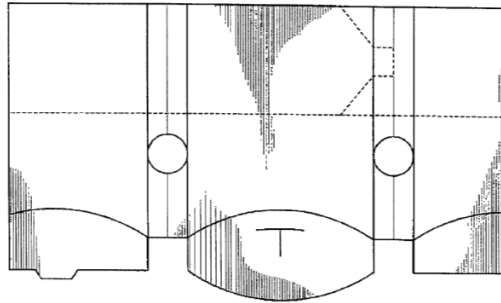
**X. THE CLAIMS OF THE GRAPHIC PATENTS SHOULD INCLUDE THE OVERALL VISUAL APPEARANCE OF THE DRAWINGS**

35. The Graphic Patents each claim priority to Provisional Application No. 60/748,638 dated December 8, 2005 and Patent Application No. 11/567,364 dated December 6, 2006 (“the ‘364 Application”).

**A. The Graphic Patents**

**1. The ‘106 Patent**

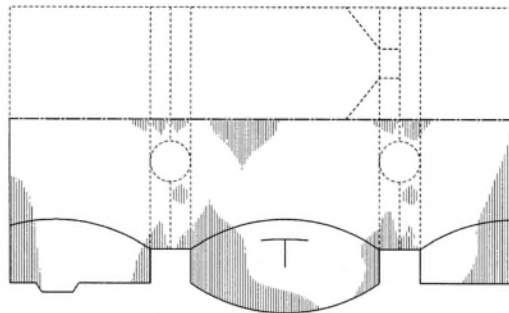
36. The sole Figure of the ‘106 Patent is as follows, with the patent claiming the ornamental design for a carton blank, as shown and described:



37. This Figure does not include a tear-away strip or removable portion as part of the protected design.<sup>1</sup>

## 2. The '145 Patent

38. The sole Figure of the '145 Patent is as follows, with the patent claiming the ornamental design for a carton blank, as shown and described:



39. A boundary line extends across the blank to form a boundary of the claimed design such that the portion of the blank beyond the boundary line is not part of the claimed design.<sup>2</sup> The '145 Patent does not claim the features such as the apertures, fold lines, and tear lines shown in the uniform broken lines.<sup>3</sup>

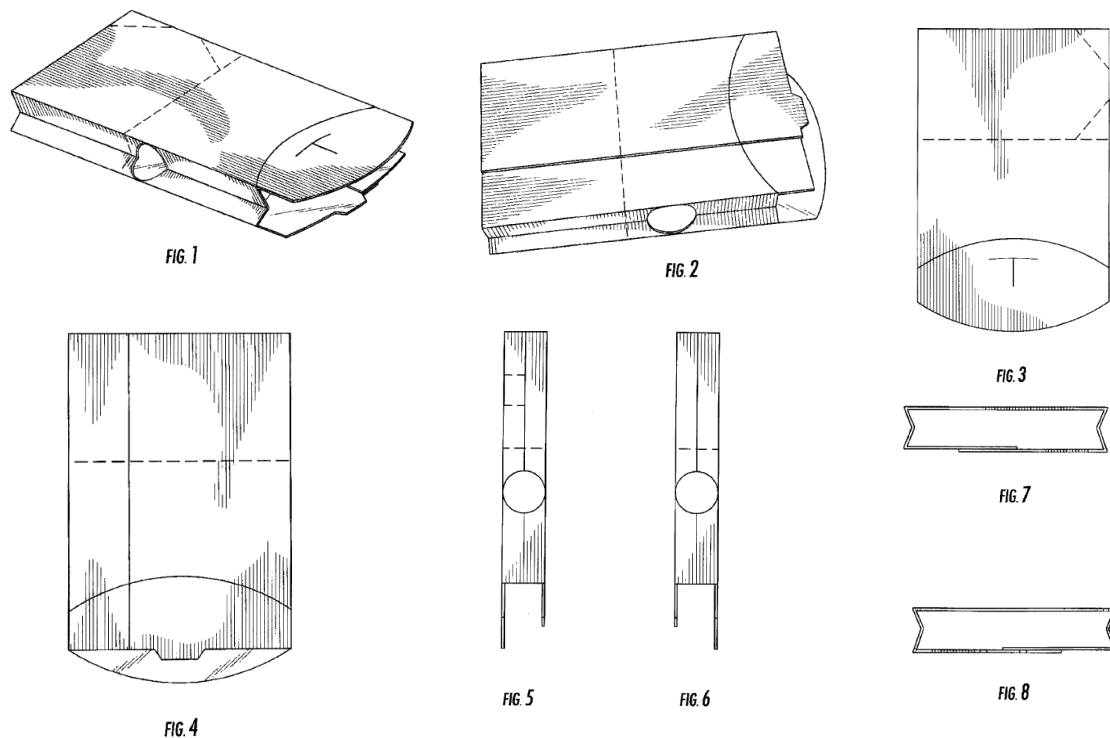
<sup>1</sup> '106 Patent at 1 ("The broken lines depict environmental subject matter and form no part of the claimed design.").

<sup>2</sup> '145 Patent at 1 ("The broken lines in the form of an alternating series of relatively short dashes and relatively long dashes represents a boundary of the claimed design.").

<sup>3</sup> '145 Patent at 1 ("The broken lines shown herein depict environmental subject matter and form no part of the claimed design.").

### 3. The '124 Patent

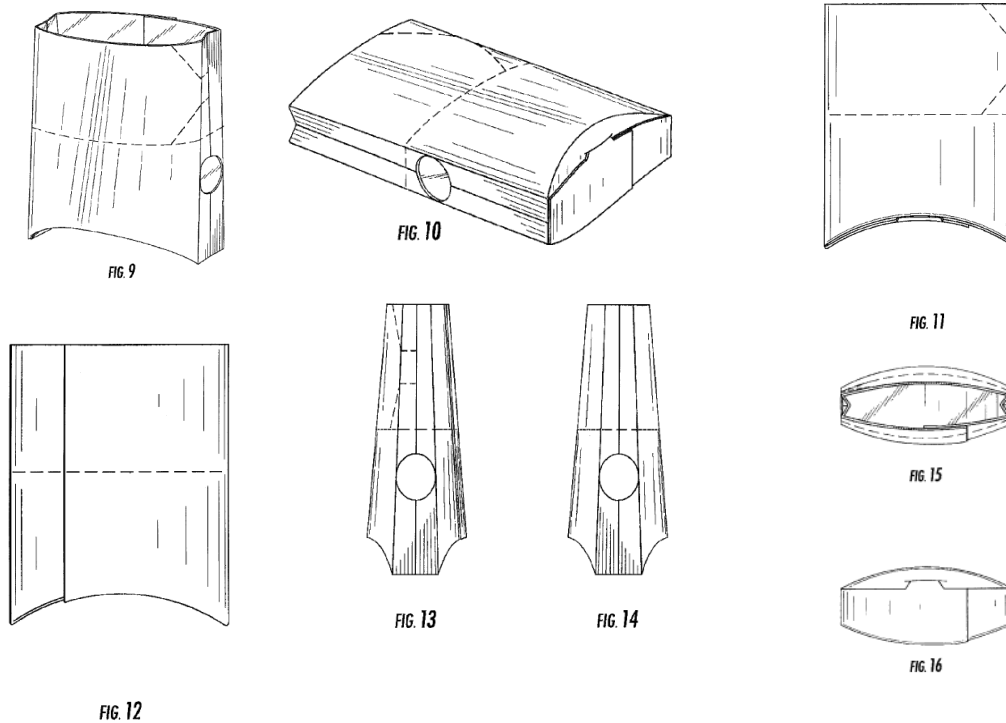
40. The '124 Patent also has a single claim, but as it relates to a carton construct, several views are necessary to show all claimed elements of the design. The first set, Figures 1-8, depict the claimed construct in an open package configuration:



41. This patent does not claim a tear-away strip or removable portion as part of the protected design.<sup>4</sup>

42. The second set, Figures 10 through 16, depict the claimed construct in a closed package configuration:

<sup>4</sup> '124 Patent at 2 (“The broken lines shown herein are for illustrative purposes and form no part of the claimed design.”).



**B. The Scope of the Claims of the Graphic Patents Should Be Construed as the Overall Visual Impression of the Drawings**

43. The underlying articles of manufacture depicted in the Graphic Patents are blanks and constructs that can serve as heating vessels for various food items such as HOT POCKET® sandwiches or LEAN CUISINE® spring rolls in a microwave oven, brown and crisp such foods in a microwave oven, serve as a carrying vessel after the food is prepared and while it is being consumed, and help the consumer access the food product while using the vessel to hold it. To facilitate these purposes, the underlying article can include features such as selectively closeable end panels that can be connected to transport the food product after heating, apertures allowing for ventilation during and after heating, and an opening allowing a consumer to conveniently

access the food product in the sleeve after heating.<sup>5</sup> The commercialized products also include microwave interactive materials to assist with browning and crisping.

44. Because a design patent can only cover the overall visual appearance of an article of manufacture – and not the underlying functionality of that article – a DOSA would not view the Graphic Patents as claiming the functionality of the features of the construct that facilitate heating, browning and crisping, carrying, and accessing a food product. Instead, a DOSA would consider the Graphic Patents as claiming the overall visual appearance of the features as depicted in the drawings.

45. For example, a DOSA would not view the claims as reading on all constructs that have end panels that are selectively closeable for holding or carrying a cooked food item (the function); but rather, would view the Graphic Patents as being limited in scope to the particular visual appearance of the selectively closeable end panels shown in the drawings (the ornamentation), along with the sum visual appearance of all of the other design features.

46. Taking all of the claimed design elements in combination into consideration, in my opinion the ‘106 Patent should be construed as the overall ornamental appearance of the design for a carton blank shown in the drawing identified as Figure 1.

47. Taking all of the claimed design elements in combination into consideration, in my opinion the ‘145 Patent should be construed as the overall ornamental appearance of the design for a carton blank shown in the drawing identified as Figure 1.

48. Taking all of the claimed design elements in combination into consideration, in my opinion the ‘124 Patent should be construed as the overall ornamental appearance of the design for a carton shown in the drawings identified as Figures 1-16.

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<sup>5</sup> But as I stated above, none of the Graphic Patents claim tear-away strips or removable portions because each patent shows these features in broken lines.

49. Because the drawings that constitute the claims of the Graphic Patents are clear and unambiguous, these opinions are based solely on my review of the intrinsic evidence and not based on any extrinsic evidence. I reserve the right to review and opine on any extrinsic evidence in response to Inline's positions.

**XI. THE GRAPHIC PATENTS HAVE SCOPE BECAUSE THE APPEARANCE OF THE CLAIMS IS NOT DICTATED BY FUNCTION**

50. I understand that Inline has proposed that the Court construe the Graphic Patents as having no claim scope because there are no non-functional aspects of the designs. I disagree with Inline's proposal.

51. As an initial matter, Inline's proposed constructions appear to reflect a misinterpretation of what I understand to be the correct application of design patent law as it relates to functionality, from my technical perspective, in two respects. First, features or elements of a design that perform a function can also contribute to the visual aesthetics of a design. A design patent would have to depict such features in order for the patent to claim an article of manufacture with a function, as required. If the Court were to construe the claims of the Graphic Patents to exclude all features that perform a function, then the visual appearance of those features would be inappropriately lost from consideration as part of the overall claimed designs.

52. Second, Inline's proposed constructions fail to consider the alleged functionality of the overall appearance of any of the Graphic Patents and whether the overall appearance is purely functional. By limiting its proposal to the functionality of separate design elements, Inline's constructions do not take into account the appropriate consideration of the overall visual appearance of the claimed designs as a whole.

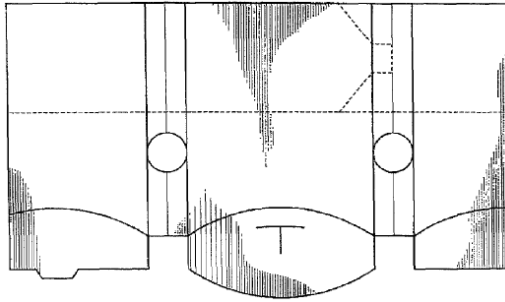


53. Looking past these issues, based on my review of the claimed designs, it is my opinion that neither the overall visual appearance of any of the Graphic Patents, nor the appearance of any of the individual design elements, are dictated by purely functional considerations. The availability of alternative designs intended to perform substantially the same underlying function in the intrinsic record of the Graphic Patents confirms that the overall visual appearance of the claimed designs is ornamental.

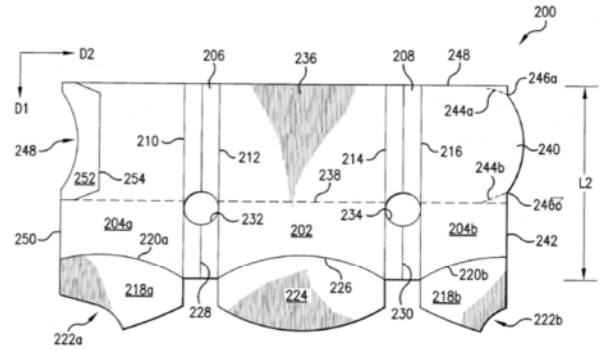
54. There are numerous alternative designs that could achieve the underlying functionality of the construct discussed in paragraph 43 above. As discussed, the Graphic Patents all claim priority to the '364 Application. The '364 Application's Abstract states that the claimed invention relates to "[v]arious blanks" "for forming sleeves, containers, and other constructs for heating, browning, and/or crisping of a food item in a microwave oven, and for holding and/or transporting the food item after heating." These functions are the same or substantially similar to the functions of the underlying articles of manufacture depicted in the Graphic Patents. Joint Appendix ("JA") Exhibit A, '364 Application at Abstract.

55. As shown in the examples below, the '364 Application discloses alternative designs and configurations for blanks and constructs that can provide the same or essentially the same underlying functions as that provided by the Graphic Patents.

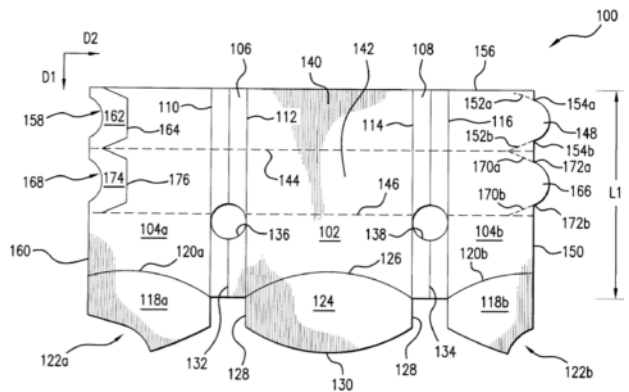
**'106 Patent (FIG 1)**



**'364 Application**

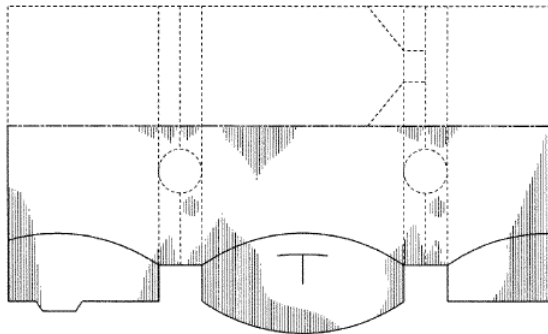


**FIG. 2A**

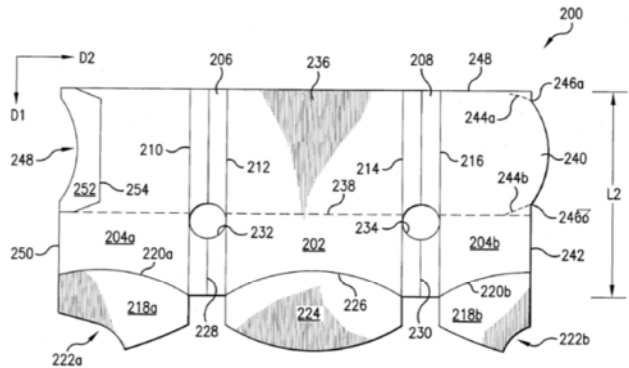


**FIG. 1A**

**'145 Patent (FIG 1)**

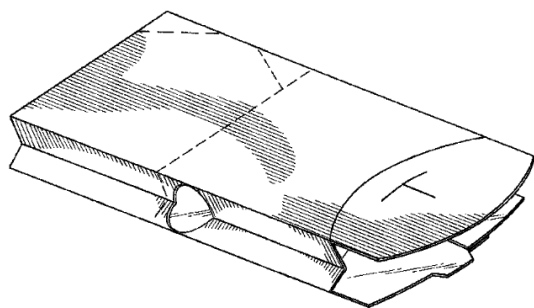


**'364 Application**



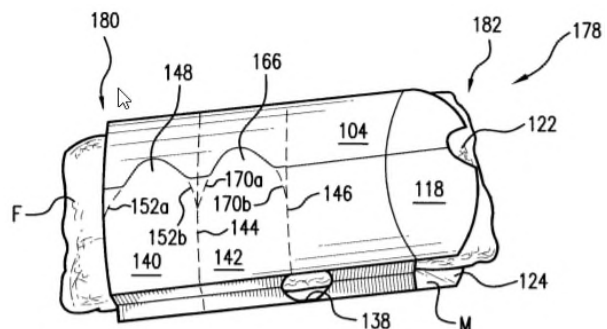
**FIG. 2A**

**'124 Patent**



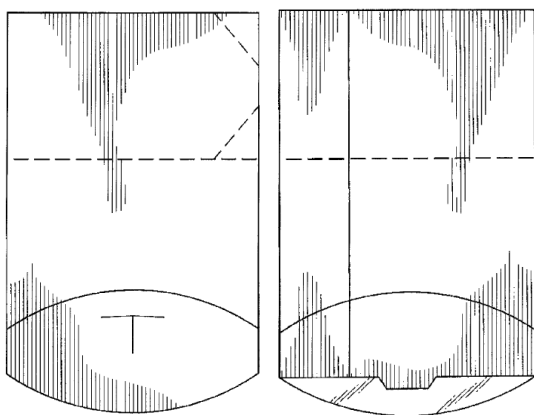
**FIG. 1**

**'364 Application**



**FIG. 1C**

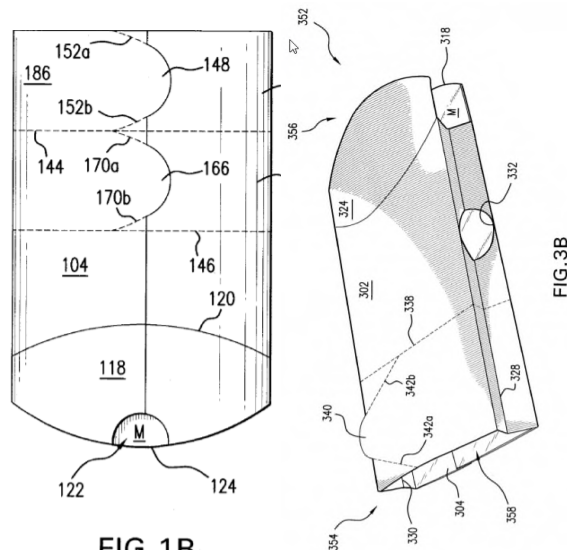
**'124 Patent**



**FIG. 3**

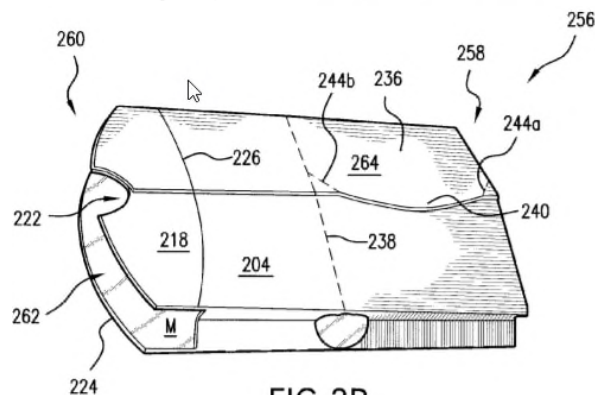
**FIG. 4**

**'364 Application**

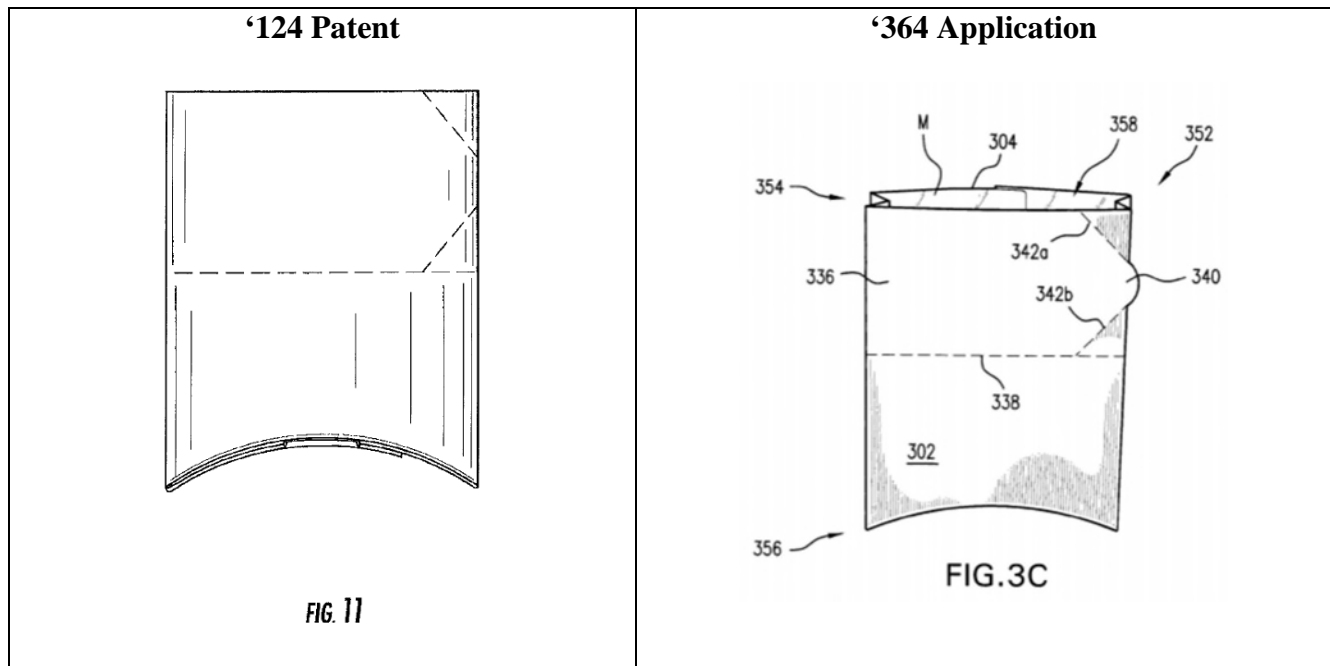


**FIG. 1B**

**FIG. 3B**



**FIG. 2B**



56. The '364 Application refers to these figures to indicate features that are described in the Description section of the application. The Description describes many of these features as having a function while also stating that alternative designs are available for use. As one example, the Description discusses the apertures shown in Figure 1A, but notes that these apertures could come in different numbers, shapes, sizes, and positions and still achieve the intended functions of the construct, like facilitating the heating, browning and crisping, and venting of a food product. JA Exhibit A, '364 Application ¶ [0040].

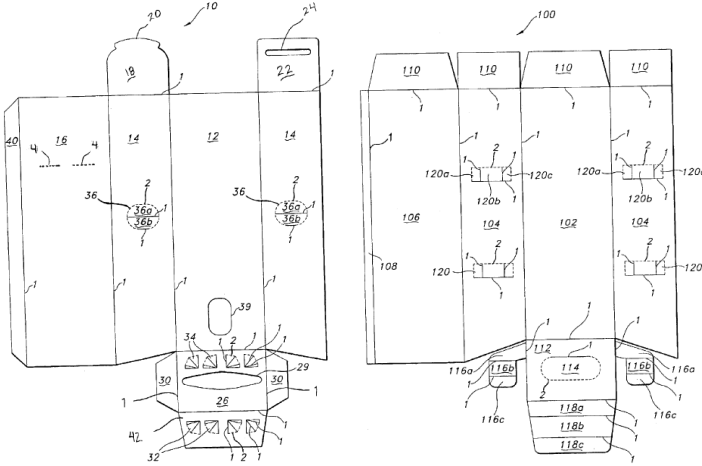
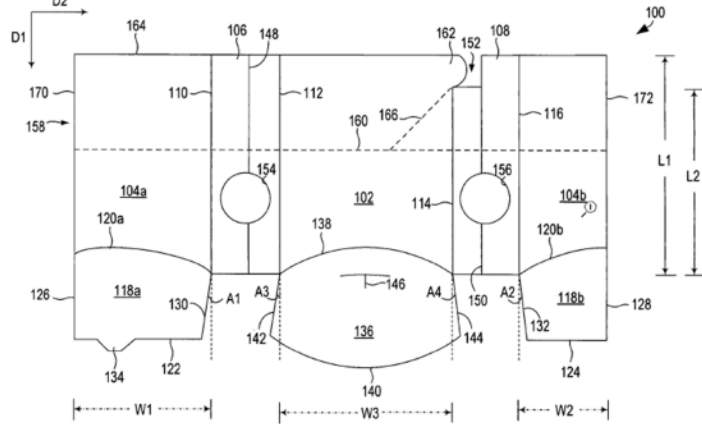
57. The Description also discusses the selectively closeable end panels that assist a consumer in carrying the food item after heating. In describing Figure 1A, the Description notes that the blank for forming the construct can include partial end panels with partial cutouts, identified as 122a and 122b. JA Exhibit A, '364 Application ¶ [0038]. When the blank is folded to form the construct, the partial cutouts form a "somewhat semi-circular cutout," identified as 122 in Figure 1C. JA Exhibit A, '364 Application ¶ [0076]. However, the Description also

states that the cutout may be “circular, square, or any other regular or irregular shape.” JA Exhibit A, ‘364 Application ¶ [0076]. As shown in Figure 1D, after heating the food item the end panel with the cutout may be folded and joined with another end panel, providing a closed base for holding and carrying the food. JA Exhibit A, ‘364 Application ¶ [0079].

58. The Description further discusses an alternative design to that in the previous paragraph for the selectively closeable end panels. Figure 4A illustrates a construct blank with a partial end panel (418a) that has a locking feature identified as 422. JA Exhibit A, ‘364 Application ¶ [0108]. The locking feature in Figure 4A takes the form of a trapezoidal tab, but the general reference to a locking feature indicates that alternative shapes could be used. Figure 4A also displays an end panel (424) with a “somewhat T-shaped receiving slit 428.” JA Exhibit A, ‘364 Application ¶ [0108]. Like the closed base in the preceding paragraph, after the blank is folded into a construct and the food item is heated, the locking feature may be inserted into the receiving slit, with the resulting closed end serving as a base for holding and carrying the food item. JA Exhibit A, ‘364 Application ¶ [0115]. This configuration is shown in Figure 4C.

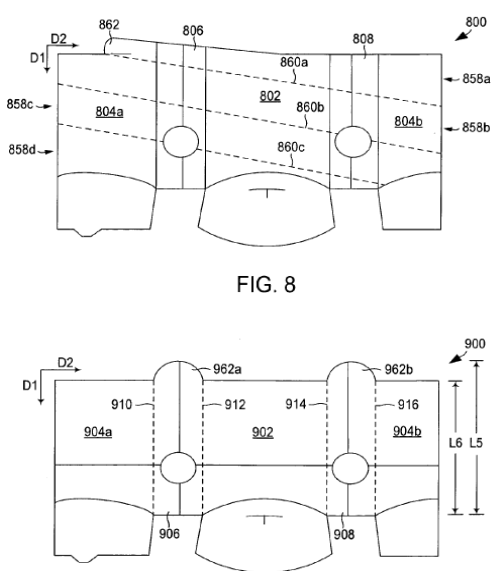
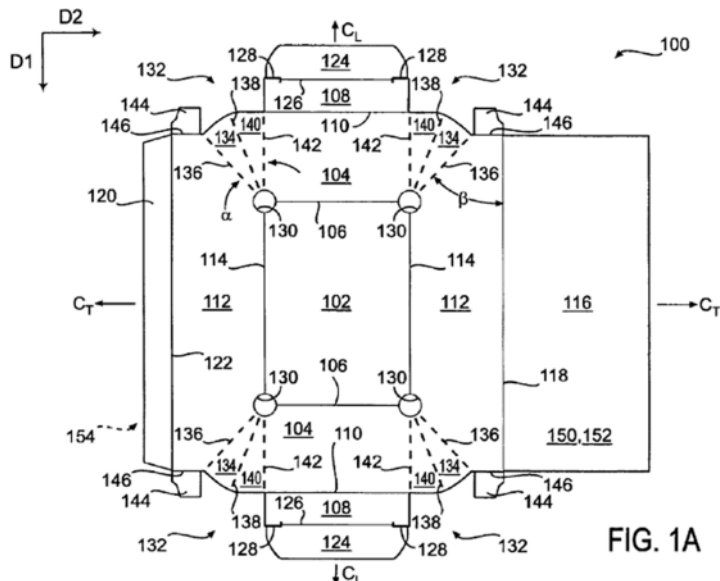
59. Figures 1A, 1C, 1D, 4A, and 4C of the ‘364 Application and the corresponding Description discussing these features show how an inventor can describe the function of a feature while also demonstrating that the visual appearance of the features may vary. This is a prime example of the features of a patented design being able to perform a function without that function dictating the appearance of the features.

60. The prior art listed on the face of the Graphic Patents also indicates that there are alternative designs that could provide the same or similar underlying functionality of the various features of the blanks and constructs in the Graphic Patents. Representative examples of such alternatives are shown below:

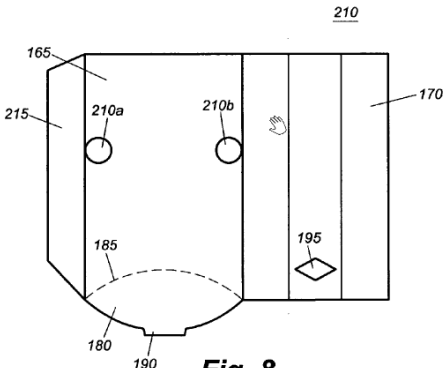
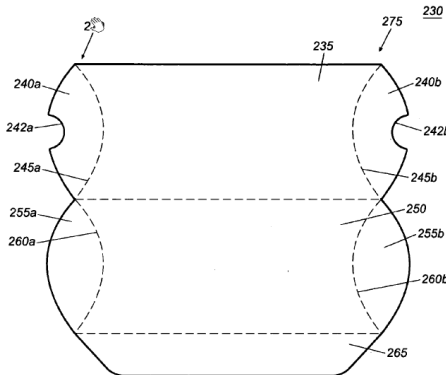
Prior Art	Alternative Design Figure
<p>U.S. Patent No. 6,877,634<sup>6</sup></p>	 <p>FIG. 2A</p> <p>FIG. 8A</p>
<p>U.S. Pub. No. 2010/0193509<sup>7</sup></p>	 <p>FIG. 1A</p>

<sup>6</sup> JA Exhibit B.

<sup>7</sup> JA Exhibit C.

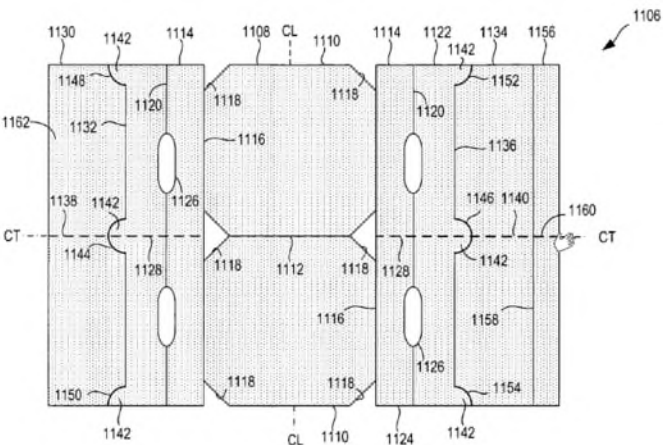
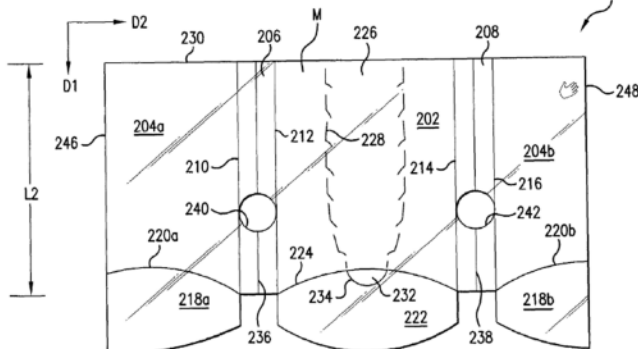
Prior Art	Alternative Design Figure
	 <p>FIG. 8 is a cross-sectional view of a mechanical assembly 800. It shows a central component 802 with two circular features 804a and 804b. The assembly is bounded by dashed lines 858a, 858b, 858c, and 858d. Dimensions D1 and D2 are indicated. Other labels include 862, 806, 860a, 860b, 860c, and 808.</p> <p>FIG. 9 is a cross-sectional view of a mechanical assembly 900. It shows a central component 902 with two circular features 904a and 904b. The assembly is bounded by dashed lines 906 and 908. Dimensions D1 and D2 are indicated. Other labels include 910, 912, 914, 916, 962a, and 962b. Vertical dimensions L6 and L5 are also shown.</p>
<p>U.S. Patent No. 8,061,265<sup>8</sup></p>	 <p>FIG. 1A is a detailed cross-sectional view of a mechanical assembly 100. It shows a complex structure with multiple layers and components. Key features include a central core 102, outer layers 104, 106, 108, 110, 112, 114, 116, 118, and 120. Various interfaces and features are labeled with numbers such as 122, 124, 126, 128, 130, 132, 134, 136, 138, 140, 142, 144, 146, 150, and 152. Dimensions D1, D2, C<sub>L</sub>, and C<sub>T</sub> are indicated. Angles <math>\alpha</math> and <math>\beta</math> are also shown.</p>

<sup>8</sup> JA Exhibit D.

Prior Art	Alternative Design Figure
<p>U.S. Pub. No. 2006/0096978<sup>9</sup></p>	 <p><b>Fig. 8</b></p>  <p><b>Fig. 11</b></p>

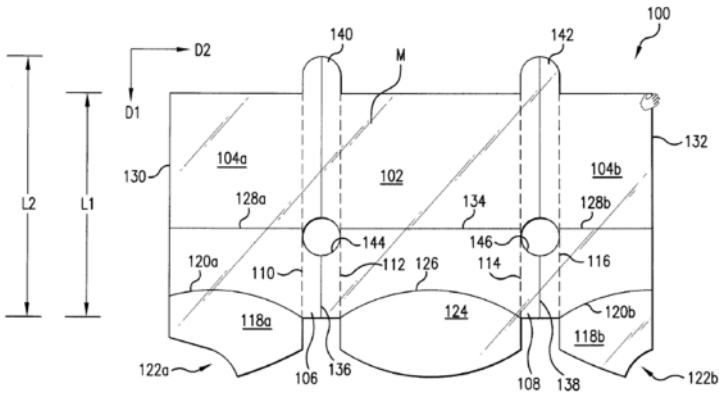
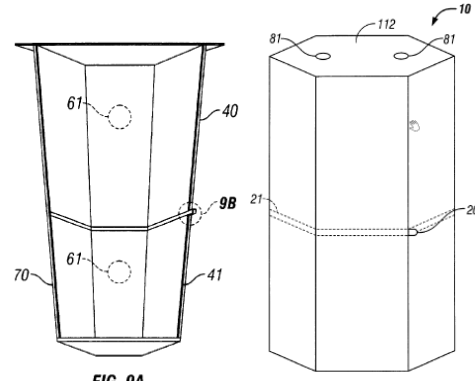
<sup>9</sup> JA Exhibit E.



Prior Art	Alternative Design Figure
<p>U.S. Patent No. 8,063,344<sup>10</sup></p>	 <p>FIG. 11B</p>
<p>U.S. Patent No. 7,473,875<sup>11</sup></p>	 <p>FIG. 2A</p>

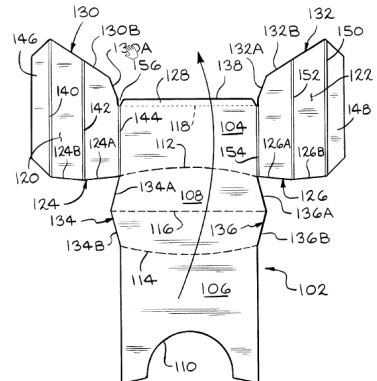
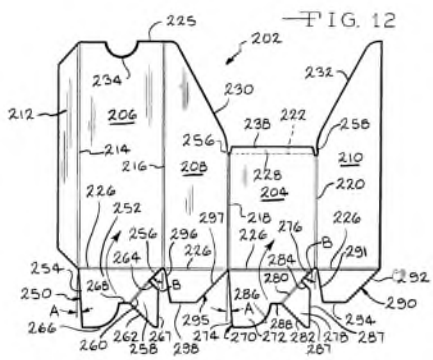
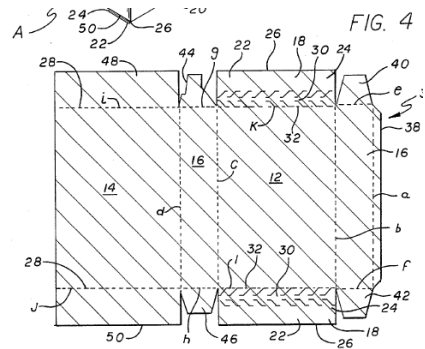
<sup>10</sup> JA Exhibit F.

<sup>11</sup> JA Exhibit G.

Prior Art	Alternative Design Figure
<p>U.S. Patent No. 7,667,167<sup>12</sup></p>	 <p>FIG. 1A</p>
<p>U.S. Patent No. 6,683,289<sup>13</sup></p>	 <p>FIG. 9A</p> <p>FIG. 10A</p>

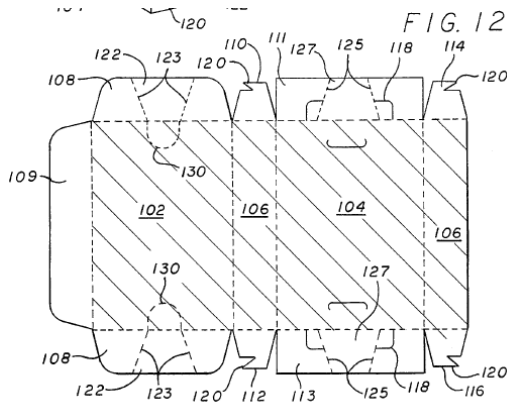
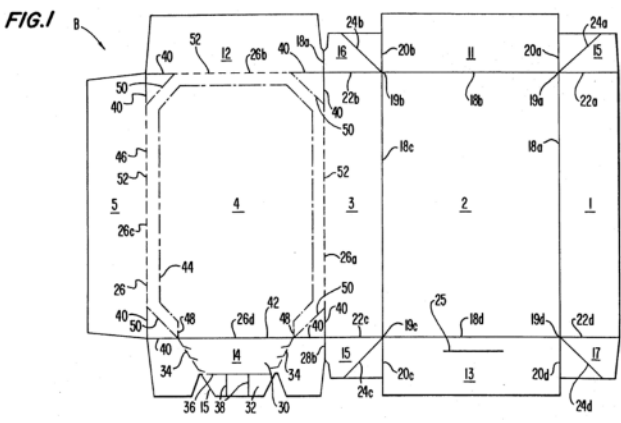
<sup>12</sup> JA Exhibit H.

<sup>13</sup> JA Exhibit I.

Prior Art	Alternative Design Figure
<p>U.S. Patent No. 5,938,110<sup>14</sup></p>	 <p>FIG. 4</p>  <p>FIG. 12</p>
<p>U.S. Patent No. 5,510,132<sup>15</sup></p>	 <p>FIG. 4</p>

<sup>14</sup> JA Exhibit J.

<sup>15</sup> JA Exhibit K.

Prior Art	Alternative Design Figure
	
U.S. Patent No. 5,078,273 <sup>16</sup>	

61. Having awareness of this prior art, it is my opinion that a DOSA would understand that there are numerous different visual expressions for the underlying functionality of the blanks and constructs depicted in the claims of the Graphic Patents. Construing allegedly functional aspects out of the claimed designs would improperly eliminate the contributions that such features make to the overall ornamental appearance of the designs as viewed by a DOSA.

<sup>16</sup> JA Exhibit L.

I declare under penalty of perjury that the foregoing is true and correct.

Dated: May 21, 2019

By: John D. Floros

John Floros, Ph.D.

**Schedule A**

***Curriculum Vitae* of Dr. John Floros**

## **JOHN D. FLOROS, PhD**

### **CURRICULUM VITA**

President	Work Email: <a href="mailto:floros@nmsu.edu">floros@nmsu.edu</a>
Professor of Food Science & Engineering	Office Tel.: 575-646-2127
New Mexico State University	Personal Email: <a href="mailto:john.floros@yahoo.com">john.floros@yahoo.com</a>
220 Hadley Hall, Las Cruces, NM 88003-8001	Mobile: 814-441-7146

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<b>RESEARCH, SCHOLARSHIP AND CREATIVE ENDEAVOR</b>	<b>Pages 15-31</b>
<b>EXTENSION, OUTREACH &amp; SERVICE</b>	<b>Pages 32-33</b>
<b>TECHNOLOGY TRANSFER, TECHNICAL EXPERT AND CONSULTING</b>	<b>Pages 34-35</b>

**GENERAL INFORMATION****Professional Experience**

- 2018- President and Professor of Food Science & Engineering, New Mexico State University
- 2012-18 Dean of the College of Agriculture, Director of K-State Research & Extension, and Professor of Food Science & Engineering, Kansas State University
- 2000-12 Head of the Department of Food Science, and Professor of Food Science & Engineering, Pennsylvania State University
- 2007-08 President, Institute of Food Technologists, Chicago, IL
- 1999-2000 Elected Professor, Food Science and Engineering, Department of Food Science and Technology, Aristotelian University of Thessaloniki, Greece
- 1998-2000 Professor, Food Process Engineering and Packaging, Department of Food Science (Joint/Courtesy appointment with the Department of Agricultural and Biological Engineering), Purdue University
- 1993-98 Associate Professor, Food Process Engineering and Packaging, Department of Food Science (Joint/Courtesy appointment with the Department of Agricultural and Biological Engineering), Purdue University
- 1995-96 Senior Research Engineer, Nestle R&D Center Inc., New Milford, CT
- 1988-93 Assistant Professor, Food Process Engineering and Packaging, Department of Food Science (Joint/Courtesy appointment with the Department of Agricultural and Biological Engineering), Purdue University
- 1984-88 Research Assistant, Department of Food Science & Technology, University of Georgia
- 1983-84 Research Assistant, Laboratory of Microbiology, Agricultural University of Athens, Greece
- 1981-83 Plant Manager, Tomato Processing Plant, Central Union of Agricultural Cooperative, Ilia, Greece
- 1977-81 Production Supervisor, Fruit & Vegetable Processing Plant, Asteris, Inc., Greece (during the production seasons of June to October)

**Education**

- 1984-88 PhD, Food Science & Technology, University of Georgia, Athens, GA, USA
- 1976-83 BS/MS, Food Science & Technology, Agricultural University of Athens, Greece

**Training in Academic Leadership**

- 2017 Advancing to the Presidency, American Council on Education, April 24-25, Washington, DC
- 2013-17 University / Industry Consortium (UIC)
- 2012-17 Association of Public and Land-Grant Universities (APLU) Meetings
- 2005-07 Food Systems Leadership Institute (Cohort I)
- 2005 Future of the American Public Research University, Academic Symposium, Penn State University, Feb. 25



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- 2005 Research and Professional Ethics Workshop, Office of Research Protection and the College of Ag. Sciences, Penn State University, Jan. 18
- 2001 Chairing the Academic Department, Workshop for Division / Department Chairs and Deans, American Council on Education, Feb. 14-17, San Diego, CA
- 2000-12 Academic Leadership Forum, Regular Programs for Academic Administrators, Office of the Provost, Penn State University
- 2000-11 The Penn State Leadership Academy, Development Program for Academic Administrators, Penn State University
- 2000 The Penn State Executive Leadership and Management Program for Academic Administrators, Smeal College of Business, Penn State University, Nov. 19-21
- 1994-95 ESCOP/ACOP Leadership Program (Class IV, Project: Teaching Academy)

### **Membership in Professional and Honor Societies (past and present)**

- American Society of Agricultural and Biological Engineers (ASABE, formerly ASAE)
- American Society for Quality Control (ASQC)
- American Statistical Association (ASA)
- Institute of Food Technologists (IFT)
- Society of Plastics Engineers (SPE)
- Gamma Sigma Delta ( $\Gamma\Sigma\Delta$ )
- Phi Kappa Phi ( $\Phi K\Phi$ )
- Phi Tau Sigma ( $\Phi T\Sigma$ )
- Sigma Xi ( $\Sigma\Xi$ )

### **Major Awards & Honors**

- 2017 The Wallace Kidd Diversity Award (MANNRS), Kansas State University
- 2014 Food and Drug Administration's Award in recognition of "*distinguished service to the people of USA*"
- 2009 Fellow, Institute of Food Technologists
- 2007 Fellow, Food Systems Leadership Institute
- 2001 J. G. Woodrooff Lecturer, University of Georgia
- 1997 Honorary Research Professor, Department of Biotechnology, Denmark's Technical University, Lyngby, Denmark
- 1989 Robert C. Anderson Award for Research Creativity, University of Georgia
- 1988 Paper Award for a *Publication with Exceptional Engineering Merit*, American Society of Agricultural Engineers (ASAE, now ASABE)
- 1988 Student Scientist Award, Southern Association of Agricultural Scientists
- 1987 E. Broadus Browne Award for Outstanding Ph.D. Research, University of Georgia

1987 Certificate of Merit for Outstanding Scholastic Ability, Institute of Food Technologists

1986 Student Scientist Award, Southern Association of Agricultural Scientists

### **Board Memberships and Selected Key Professional Activities**

2017-18 Co-Chair, National Academies of Sciences, Engineering and Medicine, Executive Committee on Science Breakthroughs 2030: A Strategy for Food and Agricultural Research

2017 Testified in front of the Senate Committee on Agriculture, Nutrition, and Forestry on “Agricultural Research: Perspectives on Past and Future Successes for the 2018 Farm Bill”

2016-17 Chair, International Advisory Board, Food Safety & Technology Research Center, The Hong Kong Polytechnic University

2015-16 External Advisory Board, Agency for Science, Technology and Research (A\*STAR), Singapore

2015-16 External Review Board, Aristotelian University, Thessaloniki, Greece

2014-18 Executive Committee, University and Industry Consortium

2014-15 Scientific Advisory Council, Wrigley’s

2013-18 Kansas 4-H Foundation Board

2013-14 Global Health Subcommittee, US Food and Drug Administration (FDA)

2012-18 Kansas Water Authority Board

2011-18 External Advisory Board, Hellenic Quality Assurance Agency of Higher Education, Greece

2011-13 Research Advisory Board, Tate & Lyle

2010-13 Technical Advisory Board, MGP Ingredients, Inc.

2010-11 External Review Committee, Center for Food Safety and Applied Nutrition (CFSAN), FDA (Chair)

2010-11 Expert Review Panel, Advanced Foods and Materials Network, Canada

2009-13 Science Board, U.S. Food and Drug Administration (FDA)

2008-09 External Review Board, Food Science Department, Stellenbosch University, South Africa

2007-08 External Review Board, Food Science Department, University of Guelph, Canada

2006-09 Board of Directors, Institute of Food Technologists

2004-06 Executive Board, Food Update Foundation

2004-05 Council of Food Science Administrators (Chair)

2003-04 External Review Board, College of Food Systems, United Arab Emirates University

1998-01 Executive Board, Institute of Food Technologists

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1998-99 External Review Board, Department of Applied Biology & Chemical Technology,  
Technical University of Hong Kong

## **LEADERSHIP AND ACADEMIC ADMINISTRATION**

### **New Mexico State University (NMSU), President (2018 – Present)**

**Size and Nature of New Mexico State University:** New Mexico State University sits on a 900-acre campus and enrolls more than 14,500 students from 49 states and 89 foreign countries. NMSU is New Mexico's land-grant university, a comprehensive research institution of higher education dedicated to teaching, research, and service at the undergraduate and graduate levels. NMSU is also a NASA Space Grant College, a Hispanic-serving institution and is home to the very first Honors College in New Mexico. NMSU as a system serves a multi-cultural population of students and communities across the state at five campuses, a satellite learning center in Albuquerque, cooperative extension offices located in each of New Mexico's 33 counties, 12 agriculture research and science centers, and distance education programs that give students maximum flexibility. We have been recognized as a top tier university by U.S. News & World Report.

#### **Duties as New Mexico State University President:**

- Work with the Chancellor to ensure that the institution acquires the necessary public and private resources for successful achievement of the University's goals and objectives
- Articulate the NMSU mission, vision and goals to internal and external constituencies clearly
- Lead an effort to become a student-centered institution, with a strong student orientation and a dedication to preparing students for success in a global environment
- Foster growth in student enrollment, retention rates, graduation rates, placement rates, academic program quality, and elevation of the academic profile of incoming students
- Establish efficient operations throughout the organization, while fostering growth in student enrollment, increasing research, creative and scholarly activity, and preserving high academic standards for undergraduate and graduate students
- Promote and show commitment to a diverse faculty, staff, and student population, and encourage cultural diversity throughout the institution's curriculum, activities and community involvement
- Ensure all facets of the University provide efficient, effective, and professional service to the internal and external constituencies of the University
- Develop and advance alliances with business, industry, government, academia and community groups
- Ensure that legislative goals on the state and federal levels are identified and met
- Enable the University to become a leader in regional economic development
- Engage in fundraising activities that increase the University's endowment
- Provide the proper administration and oversight of the operations of Athletics, and ensure that the University's intercollegiate athletic programs and activities adhere to the highest standards of integrity and the rules and requirements of the National Collegiate Athletic Association

#### **Accomplishments as NMSU President:**

- Provided vision, overall program leadership, and strategic direction to Provost, Vice Presidents, Deans, Directors, and other Unit Leaders, which form the University Leadership Team.
- Implemented significant changes to the university's structure, combining some academic or support units to streamline operations.

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- Made several critical hires in leadership positions (Provost, VPs, Deans, etc.) to create a highly performing executive team.
- Involved faculty, staff, students, community leaders and other external stakeholders in developing the NMSU 2025 strategic plan (on-going).
- Managed the university budget (~\$550M) responsibly.
- Worked closely with faculty, staff and students in a shared governance model
- Promoted teaching, research, outreach & extension, public service, and international activities both internally and externally

**Kansas State University (KSU), Dean & Director (2012 – 2018)****Size and Nature of the College of Agriculture (COA) & K-State Research & Extension**

**(KSRE):** Jointly, the COA and KSRE, make up the largest unit within the Kansas State University system. It comprises of nearly 1,600 faculty and staff, and about 3,400 students, of which 550- 600 are graduate students. The total annual expenditures in 2017 were about \$198M, with more than \$105M of that in research expenditures, by far the largest research unit in the university. Our funding sources are diverse and include: federal funds, state sources, local government contributions, student tuition and fees, competitive grants and contracts, industry grants and donations, foundation and other non-profit grants and donations, private fundraising, and other income from sales, contracts and fees.

**Duties as Dean of the College Agriculture:** As Dean of the College of Agriculture (COA) at Kansas State University, I lead a dynamic, student-centered, research-driven and service-oriented college with diverse offerings of outstanding undergraduate and highly ranked graduate academic programs. The College encompasses more than traditional production agriculture with programs ranging from food and biosciences to communication and education, from bioprocessing and engineering to natural resources and recreation, and from environmental management to economics and agri-business.

**Duties as Director of K-State Research & Extension:** As Director of K-State Research & Extension (KSRE), I oversee the Kansas Agricultural Experiment Station and the Cooperative Extension Service, a partnership between Kansas State University and federal, state, and county governments. KSRE has offices in every Kansas county, and investments in five KSU colleges: Agriculture, Arts & Sciences, Engineering, Human Ecology, and Veterinary Medicine. We conduct basic and applied research throughout Kansas that is shared by Extension faculty, educators, agents and others on our websites and through social media, numerous conferences, workshops, field days, publications, newsletters and more. In collaboration with several federal and state agencies, and other non-profit and private entities, we support Kansas' biggest industry – Agriculture and Food – by helping the state with innovation, talent development, workforce training, and economic development.

**Accomplishments as Dean and Director:**

- Provided vision, overall program leadership, and strategic direction to Associate and Assistant Deans, Department Heads, Center and Institute Directors, and Extension Program Leaders, which form our COA/KSRE Leadership Team (about 40 people)
- Involved 5000+ people (faculty, staff, students, community leaders and other external stakeholders) in developing the COA/KSRE 2025 strategic plan that set an overall goal of becoming a top 5 College of Agriculture by 2025 ([https://www.k-state.edu/2025/documents/K-State-2025-Agriculture\\_and\\_KSRE-Strategic-Direction-Action-and-Alignment-Plan-Aug-2013.pdf](https://www.k-state.edu/2025/documents/K-State-2025-Agriculture_and_KSRE-Strategic-Direction-Action-and-Alignment-Plan-Aug-2013.pdf))
- Managed the COA/KSRE budget (~\$200M) responsibly through consecutive federal/state cuts, internal university reallocations, and other financial challenges
- Worked closely with faculty, staff and students in a shared governance model
- Promoted teaching, research, outreach & extension, public service, and international activities both internally and externally
- Collaborated closely with several university leaders and groups to create the Global Food Systems Initiative, the only university-wide initiative approved by the Board of Regents and supported by state funds in recent years
- Cooperated with the KSU Foundation, the KSU Research Foundation, the K-State Institute for Commercialization, and the Vice President for Research, to define a process of strategically aligning private sector companies to the university and create long-term partnerships

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- Partnered with state agencies, non-profit groups, and private industry to help the state of Kansas with innovation, product marketing, talent development, workforce training, and economic development, particularly in areas important to the state's economy and wellbeing (food and agriculture, water and natural resources, health and wellbeing, community revitalization, youth education and leadership development)
- Guided the College of Agriculture to record enrollments during the last five years (2012-2017), with average student enrollment increases of 27% (undergraduate), 18% (graduate), and 64% (multicultural), as compared to the previous five years
- Created new undergraduate student programs, and improved student experience, learning and success, as evidenced by the highest ever reported retention rates (1<sup>st</sup> to 2<sup>nd</sup>, and 1<sup>st</sup> to 3<sup>rd</sup> year retention), by the 4-Year and 6-Year graduation rates, and by the nearly 100% job placement
- Led the COA/KSRE to record extramural research funding (from \$24M in 2011 to \$58M in 2016), an increase of ~150% in just four years, and a major factor leading to the university's designation as a Carnegie Tier-1 Research University
- Increased significantly the college's research expenditures (from \$76M in 2011 to \$105M in 2017), despite reduced state support
- Established K-State's first Industry/University Cooperative National Science Foundation Center on wheat genetics and genomics
- Advanced the college's international research and outreach agenda by successfully competing for four new Feed the Future Innovation Labs from the U.S. Agency for International Development, an investment of over \$100M for five years, making K-Sate without peer in this area of agricultural research
- Improved the COA ranking to 4<sup>th</sup> in the nation among all Colleges of Agricultural Sciences (by Niche in 2017, see <https://www.niche.com/colleges/search/best-colleges-for-agricultural-sciences/>) and most of our graduate programs were now ranked in the top five nationally.
- Increased the COA student scholarship \$\$\$ awarded by more than 50% in five years
- Intensified private fundraising efforts and raised \$86M in less than six years, and a college record \$20M last year (2017), more than triple (3X) the amount raised just a few years ago
- Completed an architectural and engineering study of the college's infrastructure needs, and initiated the design and planning for a new \$550M campaign to renew and expand our academic and research facilities

**Pennsylvania State University, Department Head (2000 – 2012)****Duties as a Department Head:**

- Provided overall program leadership and strategic direction for faculty, staff and students
- Promoted research, teaching, extension, public service, and international activities
- Advanced the continuous acquisition of internal and external resources
- Managed, coordinated and administered the Department's resources
- Articulated a vision for the future of the Department both internally and externally
- Recognized individual excellence and facilitated teamwork
- Fostered interdisciplinary ties with appropriate departments and programs within the College, University and beyond
- Strengthened linkages with and represented the Department to state and federal agencies, private entities, partners and collaborators, industry groups, alumni, and the citizens of PA
- Maintained a positive, productive and nurturing environment for students, faculty and staff
- Advocated tolerance, honesty and integrity, and promoted diversity
- Served as liaison for the Department to the administration of the College and University

**Accomplishments as Department Head:**

- Led the development of several of the department's Strategic Plans, with full participation of faculty, staff, students and external stakeholders. Examples can still be found at [http://foodscience.psu.edu/about/strategic-plan/StrategicPlan05\\_08.pdf](http://foodscience.psu.edu/about/strategic-plan/StrategicPlan05_08.pdf), or <http://foodscience.psu.edu/about/strategic-plan/Strategic%20Plan%202008-2013.pdf>
- Formed an external advisory board composed of high-level scientists and leaders from industry, government and academia
- Reversed a downward trend and increased undergraduate student numbers by ~300%, from 52 in 2002 to 222 in 2012
- Reorganized undergraduate and graduate programs, and received accreditation from the Institute of Food Technologists, the national scientific society
- Augmented the number of endowments and nearly doubled the available funds for student fellowships and scholarships in 10 years
- Increased graduate student numbers by 50%, by doubling the size of the PhD program
- Developed a focused research agenda
- Increased competitive grants/contracts from about \$1M before 2000 to an average of \$5M per year for the period of 2006-12, and increase of almost 400%
- Raised about ~\$46M from state, private, industrial and other sources for a new building
- Completed the design and construction of the new building in 2006 as the largest Food Science Building in the country
- Increased the distance education offerings and outreach programs
- Developed global connections and increased the number of international student programs
- Made significant additions to an outstanding faculty, and increase the diversity of faculty and students



**Institute of Food Technologists, President (2007 – 2008)**

IFT is the scientific society for Food Science and Technology, and a global organization with more than 20,000 members worldwide. Its mission is to advance the science of food and its applications across the global food system. The IFT president, an elected position, works broadly with scientists, engineers, technologists and other professionals from academia, industry and government to:

**Duties as President of IFT:**

- Advance and promote careers in Food Science and Technology
- Promote science, engineering, technology and their application in food
- Establish productive and interactive global networks
- Advocate for evidence-based decision making on food issues
- Communicate science, address public issues and influence outcomes

**Accomplishments as President of IFT:**

- Led or co-led the scientific society of more than 20,000 members for three years
- Implemented a new, smaller, and more responsive governance structure
- Developed and put into action a comprehensive strategic plan
- Articulated and publically communicated a new vision and mission for the Institute
- Managed, coordinated and administered the Institute's resources
- Guided the Institute through an internationalization period that proactively contributed to the global advancement of Food Science
- Strengthened the Institute's student recruitment efforts, and as a result, most Food Science programs in the country experienced significant student growth
- Fostered stronger ties with other scientific societies and together advocated for increased public support for education and research in agricultural, food and nutrition sciences
- Promoted a program to increase student scholarships

## **TEACHING, ADVISING AND MENTORING**

My expertise, passion and commitment to quality teaching have made me a popular teacher and a frequent guest lecturer. I have gained the respect, recognition and appreciation of students and faculty alike due to my keen interest in student learning, effective communication skills, and continuous commitment to improving teaching materials and methods.

### **Purdue University**

At Purdue University, I designed, developed and regularly taught four new courses:

1. FS 444 – Statistical Process Control, senior level
2. FS 445 – Food Packaging, senior level
3. FS 591 – Fruit and Vegetable Processing, senior/graduate level, and
4. FS 690B – Process/System Optimization Methods, graduate level

In addition, together with other faculty of the Food Science Department, I developed and regularly taught three graduate level courses:

5. FS 640 – Aseptic Processing & Packaging, graduate level
6. FS 654 – Food Processing & Packaging, graduate level, and
7. FS 655 – Industrial Case Studies, graduate level

### **Pennsylvania State University**

At Penn State University, I periodically taught one course:

1. FD SC 411 – Managing Food Quality, senior level

Also, I regularly taught portions of the following courses:

2. FD SC 105 – Food, Facts & Fads, freshman level, and
3. FD SC 200 – Introduction to Food Science, sophomore level

Occasionally, I also lectured in other undergraduate and graduate courses within the Department.

Finally, I was instrumental in developing and organizing two new international courses:

4. FD SC 497B – Food Systems in Central America (with a 10-day visit to Costa Rica)
5. FD SC 497F – Food Systems in Italy (with a 10-day visit to Italy)

### **Outreach Teaching Activities**

Throughout my career, I have been heavily involved in teams of faculty that developed, organized and taught many short courses and workshops. A partial list follows:

1. Aseptic Processing & Packaging Workshop (Purdue University)
2. Better Process Control School (Purdue University and PSU)
3. Food Science Fundamentals (similar workshops at Purdue University and PSU)
4. The Penn State Ice Cream Short Course (PSU)
5. The Penn State Pasteurizer's workshop (PSU)

## Graduate Student Mentoring, Advising and Training

Throughout my career, I have been very active in graduate student training. I have advised or co-advised 22 graduate students (10 M.S. and 12 Ph.D.). Five (5) of those students, having their own funding from fellowships, scholarships, and/or governmental support, chose me as their major professor because of my research expertise and excellent national and international reputation. In addition, two (2) Postdoctoral Fellows and two (2) Visiting Scholars have worked under my direction in my laboratory. Additionally, I have served as a member of the Advisory Committee for 42 other graduate students.

### Completed Graduate Students (22 Total – 10 MS & 12 PhD)

1. Guillou, Anne A. Minimization of the amount of NaCl used during natural cucumber fermentation and storage through multiresponse optimization methods. (M.S. Thesis, Aug. 1991).
2. Vieira, Margarida M. Quality changes and germination of *Bacillus cereus* T spores during ultrapasteurization and sequential heating of liquid whole eggs. (M.S. Thesis, Aug. 1991).
3. Price, Jan L. Optimization of oxygen and carbon dioxide levels for controlled/modified atmosphere packaging of shredded lettuce. (M.S. Thesis, Dec. 1992).
4. Liang, Hanhua. The effect of acoustic radiation on diffusion through biomembranes (Ph.D. Thesis, Dec. 1993).
5. Vradis, Ioannis. Modeling of electrically assisted ultrafiltration of whey. (Ph.D. Thesis, May 1995).
6. Gnanasekharan, Vivek. Evaluation of gas flow models and simulation of food package integrity tests. (Ph.D. Thesis, Aug. 1995).
7. Han, Jung, H. Modeling inhibition kinetics and mass transfer of controlled release potassium sorbate to develop an antimicrobial polymer for food packaging. (Ph.D. Thesis, May 1996).
8. Lay Ma, Sandra. Maximizing the shelf life of minimally processed apple slices by modified atmospheres and ascorbic acid treatment. (M.S. Thesis, Aug. 1997).
9. Farkas, Jerry K. The development of iron-based oxygen absorbing systems used in food packaging and preservation. (Ph.D. Thesis, Aug. 1998).
10. Rattray, Jeff. The use of neural networks to improve the effectiveness of food processing operations. (Ph.D. Thesis, Dec. 1998).
11. Dock (Steenstrup), Lisa Lotte. Development of thermal and non-thermal preservation methods for production of microbiologically safe apple cider. (Ph.D. Thesis, Dec. 1999).
12. Ozdemir, Murat. Antimicrobial releasing edible whey films and coatings. (Ph.D. Thesis, Dec. 1999).
13. Ozen, Banu. Effect of Ozone and Chlorine Dioxide treatments used in perishable food applications on polymeric materials: Changes in mechanical, thermal and mass transfer properties. (Ph.D., Thesis, Dec. 2000).
14. Lay, Ursula Vanesa. Sucrose in spray dried whole milk powder and the refining and conching processes in chocolate manufacture: A glass transition approach. (M.S. Thesis, Dec. 2005).
15. Matsos Konstantinos. Addition of active compounds in a whey protein edible coating: Effects on quality and shelf life of coated apple slices. (M.S. Thesis, Aug. 2006).
16. Chacko, Jino. Controlled release of Nisin from a biopolymer based film for food packaging applications. (M.S. Thesis, May 2008).

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17. Kokkinidou, Smaro. Destruction and deactivation of patulin by ascorbic acid. (M.S. Thesis, Aug. 2008).
18. Lay, Ursula Vanesa. Encapsulating fatty acid esters of bioactive compounds in starch. (Ph.D. Thesis, May 2010).
19. Julius Ahirifie-Gogofio. Kinetics and predictive modeling of patulin degradation by ozone in apple juice and apple cider. (M.S. Thesis, May 2010).
20. Anallese Liutman. Optimization of an alginate-based edible coating with beeswax, nisin and EDTA to maximize shelf life of fresh mushrooms. (M.S. Thesis, Dec. 2011).
21. Minal Lalpuria. The use of niacin in bioplastics for improved food packaging materials. (Ph.D. Thesis, Aug. 2012).
22. Min Liu. Synthesis of bio-based nanocomposites for controlled release of antimicrobial agents in food packaging. (Ph.D. Thesis, May. 2014).

#### Post-Doctoral Students (2)

1. Fonkwe, Linus. Small-scale processing techniques for safe food in space (1996 - 97)
2. Kouassi, Gilles, K. Mechanism of protein inactivation by High Pressure Processing; and Applications of nanoscience / nanotechnology in food packaging and safety (2005 - 07)

#### Visiting Scholars (2)

1. Valentina Trinetta. Development of pollulan films with Sacacin-A for antimicrobial active packaging (2008-09)
2. Masataka Uchino. Food packaging and food safety (2010-11)

#### Advisory Committee Member to 42 additional graduate students (Not Listed)

## RESEARCH, SCHOLARSHIP AND CREATIVE ENDEAVOR

My major research contributions are in the application of chemical engineering science, applied mathematics and industrial statistics to the field of food process engineering and packaging. My work has been focusing in developing innovative, efficient and effective food processing and packaging systems, improving the value, quality, safety and shelf life of food products, and advancing optimization methodology. Together with my students and collaborators, we broadened the understanding and modeled the behavior of several complex physicochemical and biochemical phenomena that occur during food processing and packaging; and we developed and optimized many food manufacturing operations. Specifically, we successfully accomplished the following:

- Developed effective peeling processes for fruits and vegetables, optimized a calcification process for diced tomatoes, and established new, environment-friendly methods to commercially ferment vegetables using low-salt brines.
- Discovered that acoustic (ultrasonic) radiation accelerates mass transfer in food dehydration, hydration and rehydration
- Proved that application of electric fields increases permeate flow during ultrafiltration
- Found optimum gas permeability values for “breathable” plastic films that maximize the shelf life of minimally processed produce packaged under modified atmospheres
- Designed “active” packaging films that (a) have antimicrobial properties and improve the safety of some packaged foods, and (b) absorb oxygen and extend the shelf life of oxygen sensitive foods
- Modeled the migration of health-hazardous substances and the sorption of flavor components in packaged foods
- Improved methods and equipment that detect package integrity defects and assure food safety and quality
- Showed that genetic algorithms, neural networks and fuzzy logic can be used to optimize, monitor and optimally control some food manufacturing operations
- Applied thermal and non-thermal methods to reduce pathogenic microorganisms and mycotoxins in fresh and minimally processed fruits and vegetables
- Applied nanotechnology based approaches to build new bio-based polymers for improved controlled release of active compounds and better packaging applications
- Developed edible films and coatings with antimicrobial and other active properties to improve the safety and quality of food products

Alone or with my students and other colleagues, I have published more than **130** research articles, book chapters and other publications, more than **110** research abstracts, and have made numerous scientific and technical presentations, more than **300** of which have been invited.

### Research Publications

#### Refereed Papers

1. Floros, J.D. and Chinnan, M.S. 1987. Optimization of pimiento pepper lye-peeling process using response surface methodology. *Trans. ASAE*. 30:560-565.
2. Floros, J.D., Wetzstein, H.Y. and Chinnan, M.S. 1987. Chemical (NaOH) peeling as viewed by scanning electron microscopy: Pimiento peppers as a case study. *J. Food Sci.* 52:1312-1316, 1320.

3. Floros, J.D. and Chinnan, M.S. 1988. Computer graphics-assisted optimization for product and process development. *Food Technol.* 42(2):72-78, 84.
4. Floros, J.D. and Chinnan, M.S. 1988. Seven factor response surface optimization of a double-stage lye (NaOH) peeling process for pimiento peppers. *J. Food Sci.* 53:631-638.
5. Floros, J.D. and Chinnan, M.S. 1988. Microstructural changes during steam peeling of fruits and vegetables. *J. Food Sci.* 53:849-853.
6. Cheng, T-S., Floros, J.D., Shewfelt, R.L. and Chang, C.J. 1988. The effect of high-temperature stress on ripening of tomatoes (*Lycopersicon esculentum*). *J. Plant Physiol.* 132:459-464.
7. Chinnan, M.S. and Floros, J.D. 1989. Texture optimization of chemically (NaOH) peeled pimiento peppers. *Int. Food Sci. Technol.* 7:75-80.
8. Mudahar, G.S., Toledo, R.T., Floros, J.D. and Jen, J.J. 1989. Optimization of carrot dehydration process using response surface methodology. *J. Food Sci.* 54:714-719.
9. Floros, J.D. and Chinnan, M.S. 1989. Determining the diffusivity of sodium hydroxide through tomato and capsicum skins. *J. Food Eng.* 9:129-141.
10. Floros, J.D. 1990. Controlled and modified atmospheres in food packaging and storage. *Chem. Eng. Progress.* 86(6):25-32.
11. Floros, J.D. and Chinnan, M.S. 1990. Diffusion phenomena during chemical (NaOH) peeling of tomatoes. *J. Food Sci.* 55:552-553.
12. Floros, J.D. and Chinnan, M.S. 1990. Effect of film perforation on the quality of individually seal packaged tomatoes. *J. Food Quality.* 13:317-329.
13. Guillou, A.A. and Floros, J.D. 1992. Problems associated with the processing of cucumber pickles: Softening, bloater formation and environmental pollution. *Develop. Food Sci.* 29:499-514.
14. Floros, J.D., Ekanayake, A., Abide, G.P. and Nelson, P.E. 1992. Optimization of a diced tomato calcification process. *J. Food Sci.* 57:1144-1148.
15. Guillou, A.A., Floros, J.D. and Cousin, M.A. 1992. Calcium chloride and potassium sorbate reduce sodium chloride used during natural cucumber fermentation and storage. *J. Food Sci.* 57:1364-1368.
16. Vradis, I. and Floros, J.D. 1993. Membrane separation processes for wine dealcoholization and quality improvement. *Develop. Food Sci.* 32:501-520.
17. Price, J.L. and Floros, J.D. 1993. Quality decline in minimally processed fruits and vegetables. *Develop. Food Sci.* 32:405-427.
18. Guillou, A.A. and Floros, J.D. 1993. Multiresponse optimization minimizes salt in natural cucumber fermentation and storage. *J. Food Sci.* 58:1381-1389.
19. Gnanasekharan, V. and Floros, J.D. 1994. Package integrity evaluation: Criteria for selecting a method - Part I. *Packag. Technol. Eng.* 3(6):44-48.

20. Gnanasekharan, V. and Floros, J.D. 1994. Package integrity evaluation: Criteria for selecting a method - Part II. *Packag. Technol. Eng.* 3(7):67-72.
21. Floros, J.D. and Liang, H. 1994. Acoustically assisted diffusion through membranes and biomaterials. *Food Technol.* 48(12):79-84.
22. Floros, J.D. and Liang, H. 1995. Multiresponse optimization by a normalized function approach. *Develop. Food Sci.* 37:2139-2150.
23. Gnanasekharan, V. and Floros, J.D. 1995. Back propagation neural networks: Theory and applications for food science and technology. *Develop. Food Sci.* 37:2151-2168.
24. Vradis, I.G. and Floros, J.D. 1995. Genetic algorithms and fuzzy theory for optimization and control of food processes. *Develop. Food Sci.* 37:2169-2182.
25. Floros, J.D., Dock L.L. and Han J.H. 1997. Active packaging technologies and applications. *Food Cosmet. & Drug Packag.* 20:10-17.
26. Farkas, J.K., Floros, J.D., Lineback, D.S. and Watkins, B.A. 1997. Oxidation kinetics of menhaden oil with TBHQ. *J. Food Sci.* 62:505-507, 547.
27. Gnanasekharan, V. and Floros, J.D. 1997. Migration and sorption phenomena in packaged foods. *CRC Crit. Rev. Food Sci. Nutr.* 37:519-559.
28. Han, J.H. and Floros, J.D. 1997. Casting antimicrobial packaging films and measuring their physical properties and antimicrobial activity. *J. Plastic Film Sheet.* 13:287-298.
29. Han, J.H. and Floros, J.D. 1998. Modeling the growth inhibition kinetics of baker's yeast by potassium sorbate using statistical approaches. *J. Food Sci.* 63:12-14.
30. Han, J.H. and Floros, J.D. 1998. Potassium sorbate diffusivity in American processed and Mozzarella cheeses. *J. Food Sci.* 63:435-437.
31. Han, J.H. and Floros, J.D. 1998. Simulating diffusion model and determining diffusivity of potassium sorbate through plastics to develop antimicrobial packaging films. *J. Food Proc. Preserv.* 22:107-122.
32. Han, J.H. and Floros, J.D. 1998. Modelling the change in colour of potassium sorbate powder during heating. *Internat. J. Food Sci. Technol.* 33:199-203.
33. Dock, L.L., Nielsen, P.V. and Floros, J.D. 1998. Biological control of *Botrytis cinerea* growth on apples stored under modified atmospheres. *J. Food Protect.* 61:1661-1665.
34. Floros, J.D., Ozdemir, M and Nelson, P.E. 1998. Trends in aseptic packaging and bulk storage. *Food Cosmet. Drug Packag.* 21:236-239.
35. Han, J.H. and Floros, J.D. 1999. Modeling antimicrobial activity loss of potassium sorbate against baker's yeast after heat process to develop antimicrobial food packaging materials. *Food Sci. Biotechnol.* 8(1):11-14.
36. Rattray, J.H., Floros, J.D. and Linton, R.H. 1999. Computer-aided microbial identification using decision trees. *Food Control* 10:107-116.



37. Moruzzi, G., Garthright, W.E. and Floros, J.D. 2000. Aseptic packaging machine pre-sterilisation and package sterilisation: statistical aspects of microbiological validation. *Food Control* 11:57-66.
38. Dock, L.L., Floros, J.D. and Linton, R.H. 2000. Heat inactivation of *Escherichia coli* O157:H7 in apple cider containing malic acid, sodium benzoate and potassium sorbate. *J. Food Protect.* 63:1026-1031.
39. Han, J.H. and Floros, J.D. 2000. Simulating migration models and determining the releasing rate of potassium sorbate from antimicrobial plastic films. *Food Sci. Biotechnol.* 9(2):68-72.
40. Ozdemir, M. and Floros, J.D. 2001. Analysis and modeling of potassium sorbate diffusion through edible whey protein films. *J. Food Eng.* 47:149-155.
41. Han, Y., Floros, J.D., Linton, R.H., Nielsen, S.S. and Nelson, P.E. 2001. Response surface modeling for the inactivation of *Escherichia coli* O157:H7 on green peppers (*Capsicum annuum* L.) by chlorine dioxide gas treatments. *J. Food Protect.* 64:1128-1133.
42. Ozen, B.F. and Floros, J.D. 2001. Effects of emerging food processing techniques on the packaging materials. *Trends Food Sci. Technol.* 12:60-67.
43. Steenstrup, L.L. and Floros, J.D. 2002. Statistical Modeling of D- and z-value of *E. coli* O157:H7 and pH in Apple Cider Containing Preservatives. *J. Food Sci.* 67:793-796.
44. Han, Y., Floros, J.D., Linton, R.H., Nielsen, S.S. and Nelson, P.E. 2002. Response surface modeling for the inactivation of *Escherichia coli* O157:H7 on green peppers (*Capsicum annuum*) by ozone gas treatments. *J. Food Sci.* 67:1188-1193.
45. Ozen, B.F., Dock, L.L., Ozdemir, M. and Floros, J.D. 2002. Processing factors affecting the osmotic dehydration of diced peppers. *Int. J. Food Sci. & Technol.* 37(5):497-502.
46. Ozen, B.F., Mauer L.J. and Floros, J.D. 2002. Effects of ozone exposure on the structural, mechanical and barrier properties of select plastic packaging films. *Packag. Technol. & Sci.* 15:301-311.
47. Ozdemir, M. and Floros, J.D. 2003. Film composition effects on diffusion of potassium sorbate through whey protein films. *J. Food Sci.* 68:511-516.
48. Steenstrup, L.L. and Floros, J.D. 2004. Inactivation of *E. coli* O157:H7 in apple cider by Ozone at various temperatures and concentrations. *J. Food Proc. Preserv.* 28:103-116.
49. Ozdemir, M. and Floros, J.D. 2004. Active Food Packaging Technologies. *CRC Crit. Rev. Food Sci. Nutrit.* 44(3): 185-193.
50. Yao, N., Floros J.D., and Seetharaman, K. 2005. Identification of important production variables affecting hard pretzel quality. *J. Food Quality.* 28:222-244.
51. Yao, N., Floros J.D., and Seetharaman, K. 2007. Optimisation of hard pretzel production variables affecting quality. *Intern. J. Food Sci. & Technol.* 42(3):269-280.
52. Kouassi, G.K., Anantheswaran, R.C., Knabel, S.J., and Floros, J.D. 2007. Effect of high pressure processing on activity and structure of alkaline phosphatase and lactate dehydrogenase in buffer and milk. *J. Agric. & Food Chem.* 55:9520-9529.



53. Ozdemir, M. and Floros, J.D. 2008. Optimization of edible whey protein films containing preservatives for mechanical and optical properties. *J. Food Eng.* 84:116-123.
54. Ozdemir, M. and Floros, J.D. 2008. Optimization of edible whey protein films containing preservatives for water vapor permeability, water solubility and sensory characteristics. *J. Food Eng.* 86:215-224.
55. Ozdemir, M., Ozen, B.F., Dock, L.L. and Floros, J.D. 2008. Optimization of osmotic dehydration of diced green peppers by response surface methodology. *LTW – Food Sci. & Technol.* 41:2044-2050.
56. Hayman, M.M., Kouassi, G.K., Anantheswaran, R.C., Floros, J.D., and Knabel, S.J. 2008. Effect of water activity on inactivation of *Listeria monocytogenes* and lactate dehydrogenase during high pressure processing. *Internat. J. Food Microbiol.* 124(1):21-26.
57. Lay Ma, U.V., Ziegler, G.R. and Floros, J.D. 2008. Effect of Sucrose on Physical Properties of Spray-Dried Whole Milk Powder. *J. Food Sci.* 73:E431-E438.
58. Trinetta V., Floros J.D. and Cutter C.N. 2009. Sakacin A-containing pullulan film: an active packaging system to control epidemic clones of *Listeria monocytogenes* in ready-to-eat foods. *J. Food Safety.* 30(2):366-381.
59. John D. Floros, Rosetta Newsome, William Fisher, Gustavo V. Barbosa-Canovas, Hongda Chen, C. Patrick Dunne, J. Bruce German, Richard L. Hall, Dennis R. Heldman, Mukund V. Karwe, Stephen J. Knabel, Theodore P. Labuza, Daryl B. Lund, Martina Newell-McGloughlin, James L. Robinson, Joseph G. Sebranek, Robert L. Shewfelt, William F. Tracy, Connie M. Weaver, and Gregory R. Ziegler, 2010. Feeding the World Today and Tomorrow: The Importance of Food Science and Technology – An IFT Scientific Review. *Comprehensive Reviews in Food Science and Food Safety*, 9:572-599.
60. Lay Ma, U.V., Floros, J.D. and Ziegler, G.R. 2011. Effect of Starch Fractions on Spherulite Formation and Microstructure. *Carbohydrate Polymers.* 83(4):1757-1765.
61. Lay Ma, U.V., Floros, J.D. and Ziegler, G.R. 2011. Formation of Inclusion Complexes of Starch with Fatty Acid Esters of Bioactive Compounds. *Carbohydrate Polymers.* 83(4):1869-1878.
62. Trinetta, V., Cutter, C.N. and Floros, J.D. 2011. Effects of ingredient composition on optical and mechanical properties of pullulan film for food-packaging applications. *LTW – Food Sci. & Technol.* 44:2296-2301.
63. Chacko, J., Lalpuria, M., Floros, J.D. and Anantheswaran, R.C. 2011. Controlled Release of Nisin from Biopolymer Films. *Proc. Int. Conf. Eng. Food (ICEF'11).* 1:105-106.
64. Lalpuria, M., Karwa, V., Anantheswaran, R.C. and Floros, J.D. 2013. Modified agar diffusion bioassay for better quantification of Nisaplin®. *J. Applied Microbiol.* 114(3):663-671.
65. Kokkinidou S., Floros, J.D. and Laborde, L. 2014. Kinetics of the Thermal Degradation of Patulin in the Presence of Ascorbic Acid. *J. Food Sci.* 79(1):T108-T114.
66. Floros, J.D., Wessler S., et. al. 2018. Science Breakthroughs to Advance Food and Agricultural Research by 2030, A Consensus Study Report of *The National Academies of*

*Sciences, Engineering and Medicine*, <https://doi.org/10.17226/25059>, pp. 148, The National Academies Press, Washington DC.

67. Min Liu DeGruson, John D Floros and Gregory Ziegler. 2018. Modification and Characterization of Layered Double Hydroxide Nanoparticles with Different Antimicrobial Agents. *Applied Clay Science* (In Review).
68. Chacko, J., Anantheswaran, R.C. and Floros, J.D. 2018. Modeling of Nisin Release from a Biopolymer Based Film for Food Packaging Applications. *J. Food Sci.* (In Review).

### Book Chapters

1. Floros, J.D. and Liang, H. 1992. Mass transfer and diffusion in foods. In *Encyclopedia of Food Science and Technology*. Hui, Y.H. (Ed). pp. 1657-1669. Wiley, NY.
2. Floros, J.D. 1992. Optimization methods in food processing and engineering In *Encyclopedia of Food Science and Technology*. Hui, Y.H. (Ed), pp. 1952-65, Wiley, NY.
3. Floros, J.D. and Gnanasekharan, V. 1992. Principles, technology and applications of destructive and nondestructive package integrity testing. In *Advances in Aseptic Processing Technologies*, Singh, R.K. and Nelson, P.E. (Eds), pp. 157-188, Elsevier Sci. Publ. Ltd., New York, NY.
4. Gnanasekharan, V. and Floros, J.D. 1992. Automated nondestructive package integrity testing. In *Food Processing Automation II*, pp. 361-374, ASAE, St. Joseph, MI.
5. Floros, J.D. 1993. Aseptic packaging technology. In *Principles of Aseptic Processing and Packaging*, Chambers, J.V. & Nelson, P.E. (Eds.), pp. 115-148, The Food Processors Institute, Washington, DC.
6. Floros, J.D. 1993. The shelf life of fruits and vegetables. In *The Shelf Life of Foods and Beverages*, Charalambous, G. (Ed.), pp. 195-216, Elsevier Sci. Publ. Ltd., New York, NY.
7. Gnanasekharan, V. and Floros, J.D. 1993. Shelf life prediction of packaged foods. In *The Shelf Life of Foods and Beverages*, Charalambous, G. (Ed.), pp. 1081-1118, Elsevier Sci. Publ. Ltd., New York, NY.
8. Gnanasekharan, V. and Floros, J.D. 1994. Comparison of Back Propagation Network (BPN) performance and Response Surface Methodology (RSM) for modeling food processes. In *Computer Integrated Manufacturing in the Process Industries*, Boucher, T.O., Jafari, M.A. & Elsayed, E.A. (Eds.), pp. 748-763, Rutgers Univ., Piscataway, NJ.
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12. Lay, S.V. and Floros, J.D. 1997. Extend product shelf life by combining MAP with other packaging and processing technologies. In *Fundamentals of Modified Atmosphere Packaging*, 11 pages, Society of Manufacturing Engineers, Dearborn, MI.
13. Farkas, J.K. and Floros, J.D. 1997. Active packaging: Applications and effects on food quality and safety. In *MAPack '97*, 10 pages, Institute of Packaging Professionals, Herndon, VA.
14. Dock L.L. and Floros, J.D. 1997. Processing techniques to improve the quality and shelf-life of tomato products. In *Solutions '97*, 11 pages, Packaging Machinery Manufacturers Institute, Arlington, VA.
15. Liang, H. and Floros, J.D. 1998. Osmotically induced mass transfer in apple slices. In *Drying '98*. Proceedings of the 11<sup>th</sup> International Drying Symposium (IDS 98), Halkidiki, Greece, Aug. 19-22, 1998, vol. A, pp. 938-945.
16. Ozaslan, B.F., Ozdemir, M., Dock, L.L. and Floros, J.D. 1998. Optimizing the osmotic dehydration process of green peppers. In *Drying '98*. Proceedings of the 11<sup>th</sup> International Drying Symposium (IDS 98), Halkidiki, Greece, Aug. 19-22, 1998, vol. A, pp. 946-953.
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18. Floros, J.D. and Rattray, J. 1999. Optimization methods in food processing and engineering. In *Wiley Encyclopedia of Food Science and Technology*. Francis, F.J. (Ed), Wiley, NY.
19. Dock, L.L. and Floros, J.D. 1999. Thermal and Non-Thermal Processing Techniques. In *Science and Technology of Functional Foods*, Schmidl M. and Labuza T. (Eds.), Aspen Publishers.
20. Floros, J.D., Nielsen, P.V. and Farkas, J.K. 2000. Advances in modified atmosphere and active packaging with applications in the dairy industries. *Bull. Int. Dairy Fed.* 346:22-28.
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30. Bugusu, B.A. Lay Ma, U.V. and Floros, J.D. 2011. Products and Their Commercialization. In *"Nanotechnology in the agri-food sector – Implications for the future"* Lynn Frewer, Willem Norde, Arnout Fischer and Frans Kampers (Eds.), Chapter 9, pp. 149-170. Wiley-VCH Verlag GmbH & Co. KGaA, Weinheim, Germany.
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33. Lalpuria, M., Anantheswaran, R.C. and Floros, J.D. 2012. Packaging technologies and their role in food safety. In *Microbial decontamination in the food industry: Novel methods and applications*, Ali Demirci and Michael O. Ngadi (Eds.), pp. 701-745, Woodhead Publishing Ltd., Cambridge, UK.
34. Floros, J.D. 2015. Academic Leadership through Strategic Planning – A Dean's Perspective. In *Academic Leadership in Higher Education – From the Top Down and the Bottom Up*, Robert Sternberg et al. (Eds.), pp. 161-168, Rowman & Littlefield, Lanham Maryland, USA.
35. Liu-DeGruson M. and Floros, J.D. 2018. The Influence of Processing on the Stability of Nanostructures in Food. In *Nanomaterials in Food*, Gulden Goksen (Ed.), Pan Stanford Publishing (In Press).

#### Other Publications

1. Floros, J.D. 1983. Technical and economic problems of the tomato processing industry. M.S. Thesis, Agricultural University of Athens, Greece (In Greek).

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Curriculum Vita

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2. Balis, C., Flouri, F. and Floros, J.D. 1984. Effect of air-pollution on the soil microbial flora in the region of Attica - Greece. In "*The ecological impact of the air-pollution in the Attica region.*" Part C. Project 1.7 of the European Community.
3. Floros, J.D., Chinnan, M.S. and Wetzstein, H.Y. 1986. Comparison of steam and lye-peeling mechanism by scanning electron microscopy. ASAE Paper No. 86-6549, St. Joseph, MI.
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<http://foodtechperspective.wordpress.com/2009/09/01/getting-real-about-our-modern-food-system/>.
31. Lay Ma, U.V. and Floros, J.D. 2009. Promising nanoscale technology making better foods. *PA Business Central*. 18(22):7 (Nov. 6, 2009).
32. Floros, J.D. 2011. Feeding the world today and tomorrow – A look into our Future Food System. pp. 1-6. *Based on a presentation given at the 64th AMSA Reciprocal Meat Conference (RMC), Manhattan, Kansas, June 19–22, 2011. Posted on 6/28/2011 by AMSA*

#### Published Abstracts (Not Listed)

Together with my students and collaborators, we have published more than **110** abstracts in Proceedings of local, national or international scientific conferences and meetings.

#### Selected Invited Presentations and Recent Keynote Addresses

- 2018 *Science Breakthroughs to Advance Food and Agricultural Research by 2030*, Invited Presentation at the Science and Technology in Society Forum, Kyoto, Japan
- 2015 *Sustainability of the Global Food Supply*, Keynote Speaker, Annual Symposium of the Dairy Farmers of Canada, Edmonton, Toronto, Montreal and Moncton, Canada

- 2015 *Food Science & Engineering for a More Sustainable Food Supply*, Keynote Address, 29th European Federation of Food Science and Technology International Conference, Athens, Greece
- 2015 *Sustainability of the Global Food System*, Invited Presentation at the Agency for Science, Technology and Research (A\*STAR), Singapore
- 2013 *Feeding the World through Science and Technology*, Keynote Address, National Meeting of the American Chemical Society (ACS), New Orleans, LA
- 2013 *Feeding the World Today and Tomorrow*, Keynote Speaker, National Conference of the Dietitians Association of Canada, Victoria, Canada
- 2013 *Feeding 10 Billion People: The Food System of the Future*, Keynote Address, National Food Technology Summit & Expo, Mexico City, Mexico
- 2012 *The Evolving Food System: Benefits, Trends, & Risks*, Keynote Address, Global Food Safety Initiative (GFSI) Conference, Orlando, FL
- 2011 *Feeding the World through Food Science and Technology*, Keynote Address, Argentine Food Science and Technology Congress, Buenos Aires, Argentina
- 2011 *The Role of Food Science and Technology in Feeding the World*, Invited Presentation at the Department of Food Science, Rutgers University, New Brunswick, NJ
- 2011 *The Role of Processed Foods in our Food System – Past, Present & Future*, Keynote Address, American Meat Institute (AMI) Meeting, Chicago, IL
- 2011 *A Look into our Future Food System*, Keynote Address, 64<sup>th</sup> American Meat Science Association's Reciprocal Meat Conference (RMC), Manhattan, KS
- 2011 *Summary and Closing Remarks*, Invited Presentation, 11<sup>th</sup> International Congress on Engineering and Food, Athens, Greece
- 2010 *Perspectives on Creating & Sustaining a Positive Climate in the Academic Department*, Invited Presentation at the Penn State Leadership Academy, The Pennsylvania State University, State College, PA
- 2010 *New and Emerging Applications of Nanotechnology in our Food Supply*, Invited Presentation at the National Institutes of Health (NIH) Step-Forum, Washington DC
- 2009 *Manufacturing Functional Foods: Effects on Quality and Bioavailability*, Invited Presentation at the Nutritional Genomics Conference, California State University, Pomona, CA
- 2009 *Food Packaging Technologies for a Global Food System*, Invited Presentation at the Tokyo Agricultural University, Tokyo, Japan
- 2008 *Nanotechnology for Food Processing and Packaging*, Invited Presentation at the Nanotech Northern Europe Working Group, Danish Nano-Conference, Copenhagen, Denmark
- 2008 *The Green Consumer: Opportunities and Challenges for Food Science*, Keynote Address, Annual Meeting of the Canadian Institute of Food Science and Technology (CIFST), Prince Edward Island, Canada
- 2007 *Global Trends & the Food System*, Invited Presentation at the University of Guanajuato, Mexico

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2007 *Advances in Food Packaging Technologies*, Keynote Address, Annual Conference of the South African Association of Food Science and Technology (SAAFoST), Durban, South Africa



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**Research Grants and Awards Received**

At Purdue and Penn State Universities, I received more than \$2.6M in grants and contracts. I was the PI or Co-PI in all of these grants. As a faculty at Purdue University, I received \$775,000 in grants (\$700,000 from external sources, and \$75,000 from within Purdue).

Date	Project Title	Granting Agency/Company	Amount	Investigator(s)
<b>Extramural Funding at Purdue University</b>				
1988-1989	Lye-Peeling and Calcification of Tomatoes	Brooks Foods and Akerlund and Rausing North America, Inc.	\$18,000	Floros (90%) Nelson (10%)
1988-1989	Aseptic Processing and Packaging of Egg Products	Value Added Center, Indiana Dept. of Commerce	\$15,000	Floros (60%) Cousin (30%) Nelson (10%)
1988-1990	Alternative Methods for Low-Salt Pickle Processing	Value Added Center, Indiana Dept. of Commerce	\$40,671	Floros (75%) Cousin (20%) Liska (5%)
1989-1991	Low-Salt Fermentation of Pickles: Process scale-up for Commercial Applications	Pilgrim Farms	\$30,000	Floros
1989-1992	Tomato Processing Improvement Research	Indiana and Mid-America Food Processors Associations	\$8,500	Floros
1989-1992	Modified Atmosphere Packaging for Fresh Produce	Value Added Center, Indiana Dept. of Commerce	\$50,000	Floros (70%) Handa (25%) Nelson (5%)
1991-1992	Oxygen Absorbers in Food Preservation	Mitsubishi	\$42,651	Floros (90%) Pratt (10%)
1992-1993	Food Packaging Equipment	Modern Controls and Cryovac	\$13,710	Floros
1992-1994	Migration of Plastics Components into Foods	Value Added Center, Indiana Institute of Agriculture, Food and Nutrition, Inc.	\$34,730	Floros (90%) Nelson (10%)
1994	Package Integrity Research	Graphics Packaging Corporation	\$6,500	Floros
1994-1995	Migration / Sorption of D-Limonene in an Epoxy Resin	Tropicana and Enerfab	\$20,000	Floros (90%) Nelson (10%)
1996-1997	Food Processing and Preservation in CELLS	NASA (part of a multimillion \$ project)	\$125,504	Floros
1997	Integrity of Pharmaceutical Packages	SmithKline Beecham	\$6,600	Floros

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1997-1999	Alternative methods to pasteurize apple cider	Indiana Value Added Center	\$38,000	Floros (65%) Linton (30%) Hirst (5%)
1998-2000	The use of O <sub>3</sub> and ClO <sub>2</sub> to reduce the microbial load of fresh & minimally processed Fruit & Vegtbl.	USDA	\$250,000	Nelson (35%) Floros (35%) Linton (30%)

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<b>Extramural Funding at Purdue University Subtotal</b>	<b>\$699,866</b>
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**Intramural Funding at Purdue University**

1989-1990	Food Packaging Lab. Equipment	Agricultural Expt. Station, Purdue Univ.	\$14,500	Floros
1989-1991	The Effect of Acoustic Radiation on Diffusion Through Biomembranes	Agricultural Expt. Station, Purdue Univ.	\$17,000	Floros
1992-1994	The Effect of Electric, Acoustic and Electro-acoustic Fields on Membrane Separation	Purdue Research Foundation	\$19,800	Floros
1993-1995	Quantifying Gas Leaks & Microbial Penetration in Food Packages	Agricultural Expt. Station, Purdue Univ.	\$24,000	Floros

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<b>Intramural Funding at Purdue University Subtotal</b>	<b>\$75,300</b>
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<b>Purdue University Total</b>	<b>\$775,166</b>
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At Penn State University, I led teams of faculty that received nearly \$2M in grants.

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<b>Date</b>	<b>Project Title</b>	<b>Granting Agency/Company</b>	<b>Amount</b>	<b>Investigator(s)</b>
2002-2004	Regulation, Risk and Return: A Food Systems Approach to Dairy Product Safety	USDA	\$561,217	Floros (15%) et al.
2003-2005	Detecting, Tracking and Control Hazards in Milk and Dairy Products	USDA	\$696,539	Floros (15%) et al.
2004-2006	Developing New Technologies & Programs to Enhance the Safety and Security of Dairy Products	USDA	\$623,112	Knabel (10%) Floros (9%) et al.
<b>Pennsylvania State University Total</b>			<b>\$1,880,868</b>	
<b>Total Funding (Penn State &amp; Purdue Universities)</b>			<b>\$2,656,034</b>	

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**Evidence of National and International Recognition**Selected Major Professional Activities

2012 External Reviewer, Dept. of Food Science and Human Nutrition, University of Maine  
 2011 Expert Panel Chair, Hellenic Quality Assurance Agency of Higher Education, Greece  
 2010 Expert Panel Member to review the Advanced Foods and Materials Network, Canada  
 2009 External Reviewer, Dept. of Food Science and Human Nutrition, University of Florida  
 1996 Chair, Annual Meeting Technical Program Committee, Institute of Food Technologists  
 1996 Chair, Food Packaging Division, Institute of Food Technologists  
 1996 Counselor, Institute of Food Technologists  
 1993 Executive Committee, Food Packaging Division, Institute of Food Technologists  
 1993 Executive Committee, Food Engineering Division, Institute of Food Technologists  
 1992 Chair, Indiana Section, Institute of Food Technologists

Editorial Board

Journal of Food Quality (1997-2000)  
 Food, Cosmetics & Drug Packaging (1997-2005)

Reviewed Scientific Papers for:

Transactions of the American Society of Agricultural and Biological Engineers  
 Journal of Applied Engineering  
 Food Technology  
 International Journal of Refrigeration  
 Journal of Food Engineering  
 Journal of Food Process Engineering  
 Journal of Food Processing and Preservation  
 Journal of Food Quality  
 Journal of Food Science  
 Transactions of ASAE  
 Trends in Food Science and Technology

Reviewed Research Proposals for

Binational Agricultural Research and Development (BARD) Fund program  
 Indiana Corporation for Science and Technology  
 NSF  
 NASA  
 USDA

Elected to the following

Heat and Mass Transfer Committee, American Society of Agricultural Engineers (1989-1991)  
 Food Processing Committee, American Society of Agricultural Engineers (1988-1991)  
 Food Packaging Committee, American Society of Agricultural Engineers (1991-1993)  
 Indiana Section, Institute of Food Technologists, Chair (1992-1993)  
 Food Packaging Division, Executive Committee, Institute of Food Technologists (1993-1996)  
 Food Engineering Division, Executive Committee, Institute of Food Technologists (1993-1996)  
 Food Packaging Division, Institute of Food Technologists, Chair (1996-1997)  
 Counselor, Institute of Food Technologists (1996-1999)  
 Executive Committee, Institute of Food Technologists (1998-2001)  
 Council of Food Science Administrators, Chair (2004-2005)  
 Executive Board, Food Update, (2004-2007)  
 Institute of Food Technologists, President (2007-2008)  
 Nominations and Elections Committee, Institute of Food Technologists (2010-2013)

Appointed to

Treasurer, Indiana Section, Institute of Food Technologists (1989-1991)  
 Food Engineering Scholarship Awards Committee of IFT (1989-1994)  
 Judge, IFT Graduate Student Paper Competition (1990)  
 Annual Meeting Program Committee of IFT (1990-1996; Chair in 1996-97)  
 Chair, Research Paper Awards Nominations Committee of the American Society of Agricultural Engineers (Journals of Applied Engineering and Transactions) (1991)  
 Chair, Food Engineering Scholarship Awards Committee of IFT (1991-1993)  
 Food Packaging Scholarship Awards Committee of IFT (1991-1995)  
 Judge, IFT National College Bowl Competition (1993)  
 Annual Meeting Committee of IFT (1996-1997)  
 Diversity Committee of IFT (1998-2001, Ex. Com. Liaison)  
 Frontiers in Food Science Task Force (Summit Conferences), IFT (2000-2004, Chair in 2001-02)  
 Strategic Planning Committee, IFT (2002)  
 National Awards Jury, IFT, (2002-2005)  
 General Communications Committee, IFT (2003-2005, Chair in 2003-04)  
 Communications Management Committee, IFT (2003-2007, Chair in 2005-06)  
 Strategic Planning Task Force, IFT (2005-07)  
 Task Force on Nominations & Elections, IFT (2005)  
 Nanoscience and Nanotechnology Working Group, IFT (2005-10)  
 Science Board, U.S. Food and Drug Administration (2009-13)  
 Nanoscience Advisory Panel, Chair, IFT (2011-12)

Organized and Chaired the Following Technical Sessions / Symposia

Two technical sessions on Food Packaging, and Processing of Fruits and Vegetables during the 1991 IFT National Meeting

Three technical sessions on Food Engineering, Rheology, and Food Packaging during the 1992 IFT National Meeting

Two technical sessions on Food Packaging, and Food Engineering during the 1993 IFT National Meeting

One technical session on Food Packaging during the 1993 AIChE (CoFE) Meeting

Two technical sessions on Food Engineering, and Food Packaging during the 1994 IFT National Meeting

One technical session on Food Packaging during the 1995 IFT National Meeting

One technical session on Food Packaging during the 1996 IFT National Meeting

National Program Chair

In 1996, I became the chair of IFT's Technical Program Committee. This is one of the most significant positions within our scientific organization. It involved the leadership and coordination of approximately 40 scientists from universities and industry in order to review, approve or reject about 1,500 submitted abstracts from all over the world, and then organize the institute's annual meeting, where 1,350 scientific presentations were made, and about 20,000 individuals attended.

**EXTENSION, OUTREACH & SERVICE****Extension and Outreach**

Since the early days of my faculty career, and then throughout my administrative appointments, I served as an Extension Educator and helped the local, national and international food and agricultural industry by transferring knowledge. I was always readily available to teach, answer questions on the phone, consult, and participate in numerous schools, workshops and short-courses, where basic and applied research was translated into useful and relevant information. Over the years, I have developed and taught many customized training courses for the Food and Pharmaceutical Industries.

**Service at Purdue University**Department Committees

Examination and Progress Committee, IGPFS, 1988-90  
 Newsletter Committee, 1988-90  
 Newsletter Editor, 1989-90  
 Junior Advisor, Food Science Student Club, 1988-89  
 Senior Advisor, Food Science Club, 1989-90  
 Social Committee, 1988-90  
 Undergraduate Teaching Committee, 1989  
 Undergraduate Student Counselor, 1989-95  
 Graduate Admissions and Recruitment Committee, 1990-95 (Chair 1992-95)  
 Graduate Committee, 1992-99  
 Computer Integrated Manufacturing Committee, 1992-99

College Committees

Curriculum and Student Relations Committee, 1990-93  
 Andrew's Fellowship Committee Chair, 1994-95  
 Leadership Fellows Group, 1995-99  
 Grievance Committee, 1997-98

University Committees

Faculty Representative to Graduation Commencement, 1988-97

**Service at Pennsylvania State University**Department Committees

Involved in all Departmental Committees

College Committees

PA Change Agents States for Diversity (CASD) Catalyst Team, 2000-06  
 College Leadership Retreat Committee Co-organizer, 2002  
 Search Committee for Associate Dean of Undergraduate Education, Chair, 2004  
 Strategic Planning Committee, Co-Chair, 2004-05  
 Strategic Planning Committee, 2009-10  
 Communications and Marketing Advisory Committee, 2010-11  
 Ag Futures Committee, 2010  
 College Re-Structuring Committee, 2011

University Committees

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Academic Leadership Forum Planning Committee, 2005-11  
Inter-College Masters of Professional Studies in Homeland Security (iMPS-HLS) Administrative Committee, 2009-11

**Service at Kansas State University**

College Committees

Involved in all College Committees

University Committees

Deans' Council, 2012-18  
Masters of Public Health Program Executive Board, 2012-18  
Search Committee for the Vice President of Research, 2013  
Budget Advisory Committee, 2013-16  
North Campus Corridor Task Force, 2014-15  
Research Support Task Force, 2015-16  
Budget Modernization Executive Committee, 2017-18  
Budget Modernization Steering Committee, Co-Chair, 2017-18  
Confucius Institute Board of Directors, 2018

## TECHNOLOGY TRANSFER, TECHNICAL EXPERT AND CONSULTING

During the last 35 years, I have consulted extensively for the Food and Pharmaceutical Industry on technical issues pertaining to: Food Science, Food Processing, Food Packaging, Food Engineering, Food Safety, Quality Control, Effective Research Methods, Experimental Design, Statistical & Mathematical Modeling, Process/Product Optimization, Risk Analysis, Statistical Process Control, and Problem Solving. Over the years, he also developed expertise and consulted on Research and Strategic Planning. I have worked with more than 40 different companies on more than 100 technical projects.

### Scientific, Technical & Other Boards

I have served on a number of scientific, technical, non-profit, and other boards. A few recent examples are listed below:

2006-09	Institute of Food Technologists (IFT), Board of Directors, (President 2007-08).
2009-13	Food & Drug Administration (FDA), Science Board
2010-13	MGP Ingredients, Inc., Technical Advisory Board.
2011-13	Tate & Lyle, Research Advisory Group.
2014-15	Wrigley's, Scientific Advisory Council.

### Expert Witness, Technical Expert & Litigation Experience

Throughout my career, I have been an expert witness and/or technical expert in a number of cases, patent disputes and other litigation matters. I have written numerous expert reports, opined in several cases, was deposed, and testified in court for both the plaintiff's and the defendant's sides. In particular, within the last few years, I was retained in the following litigation cases by the party in **bold and underlined**:

1. 2009/10 **Wilco AG** v. Packaging Technologies and Inspection LLC (Civil Action No. 08-635 SLR) (Expert Reports, Depositions)
2. 2010/11 **Viskase Companies, Inc.** v. World Pac International AG (Civil Action No. 09-CV-5022) (Expert Reports, Depositions)
3. 2012/13 **Frito-Lay North America, Inc.** v. Medallion Foods, Inc. and Ralcorp Holdings, Inc. (Case No. 4:12-CV-00074-ALM) (Expert Reports, Depositions, Testified in Court).
4. 2012/18 Steuben Foods, Inc. v. **Shibuya Hoppmann Corp.** (No. 1:10-cv-00781-RJA, WDNY) (Expert Reports, Case Pending)
5. 2013 North American Olive Association v. **Kangadis Food Inc.** d/b/a The Gourmet Factory, No. 13-cv-0868 (S.D. N.Y.) (Expert Reports, Depositions)
6. 2013/14 J. Ebin and Y. Jenkins v. **Kangadis Food Inc.** d/b/a The Gourmet Factory, No. 13-cv-2311 (S.D. N.Y.) (Expert Reports, Depositions)
7. 2016/18 Inline Packaging, LLC v. **Graphic Packaging International, Inc.** (Case No. 15-CV-3183 ADM/LIB, D. Minnesota) (Expert Reports, Depositions)
8. 2017/19 J.R. Simplot Company v. **McCain Foods USA, Inc.**, and **McCain Foods Limited** v. J.R. Simplot Company (Case Nos.: 1:16-cv-00449-DCN and 1:17-cv-350-DCN, D. Idaho) (Expert Reports, Depositions, Case Pending)



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9. 2018/19 **Free-Flow Packaging International, Inc.** v. Automated Packaging Systems Inc.  
(Case # 5:17-cv-02318, N.D. Ohio – Eastern Division) (Expert Reports, Case Pending)
10. **Graphic Packaging International, Inc.** v. Inline Packaging, LLC, United States  
District Court for the District of Minnesota; Case No. 15-cv-03476; 2019-Present,  
(Expert Reports, Case Pending)

**Schedule B**

***List of Materials Considered***

### **List of Materials Considered**

All documents and information referenced in the Expert Declaration of John Floros, Ph. D

#### **Patents and Related Documents**

- U.S. Patent No. D694,106 and associated file history
- U.S. Patent No. D694,124 and associated file history
- U.S. Patent No. D727,145 and associated file history
- Provisional Application No. 60/748,638 dated December 8, 2005
- Patent Application No. 11/567,364 dated December 6, 2006
- U.S. Patent No. 6,877,634
- U.S. Pub. No. 2010/0193509
- U.S. Patent No. 8,061,265
- U.S. Pub. No. 2006/0096978
- U.S. Patent No. 8,063,344
- U.S. Patent No. 7,473,875
- U.S. Patent No. 7,667,167
- U.S. Patent No. 6,683,289
- U.S. Patent No. 5,938,110
- U.S. Patent No. 5,510,132
- U.S. Patent No. 5,078,273

#### **Pleadings and Discovery**

- Joint Patent Case Status Report (Dkt. No. 107)
- Joint Claim Construction Statement (Dkt. No. 109) and accompanying exhibits

#### **Discussions**

- Discussions with counsel for Graphic regarding the legal standards